Serviceanweisung
Service manual

Ident-Nr. 4919100

SPP 90.3

494

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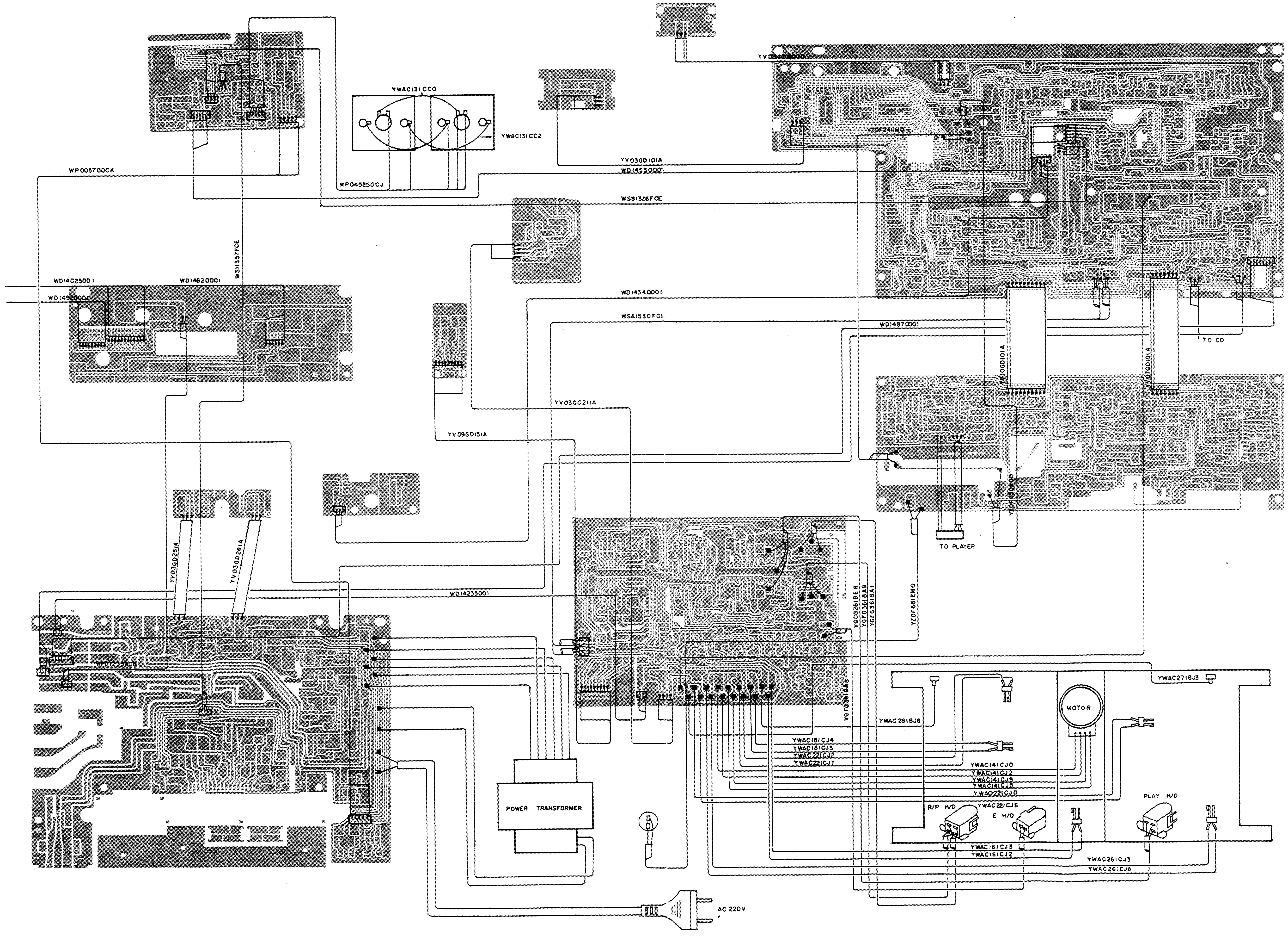
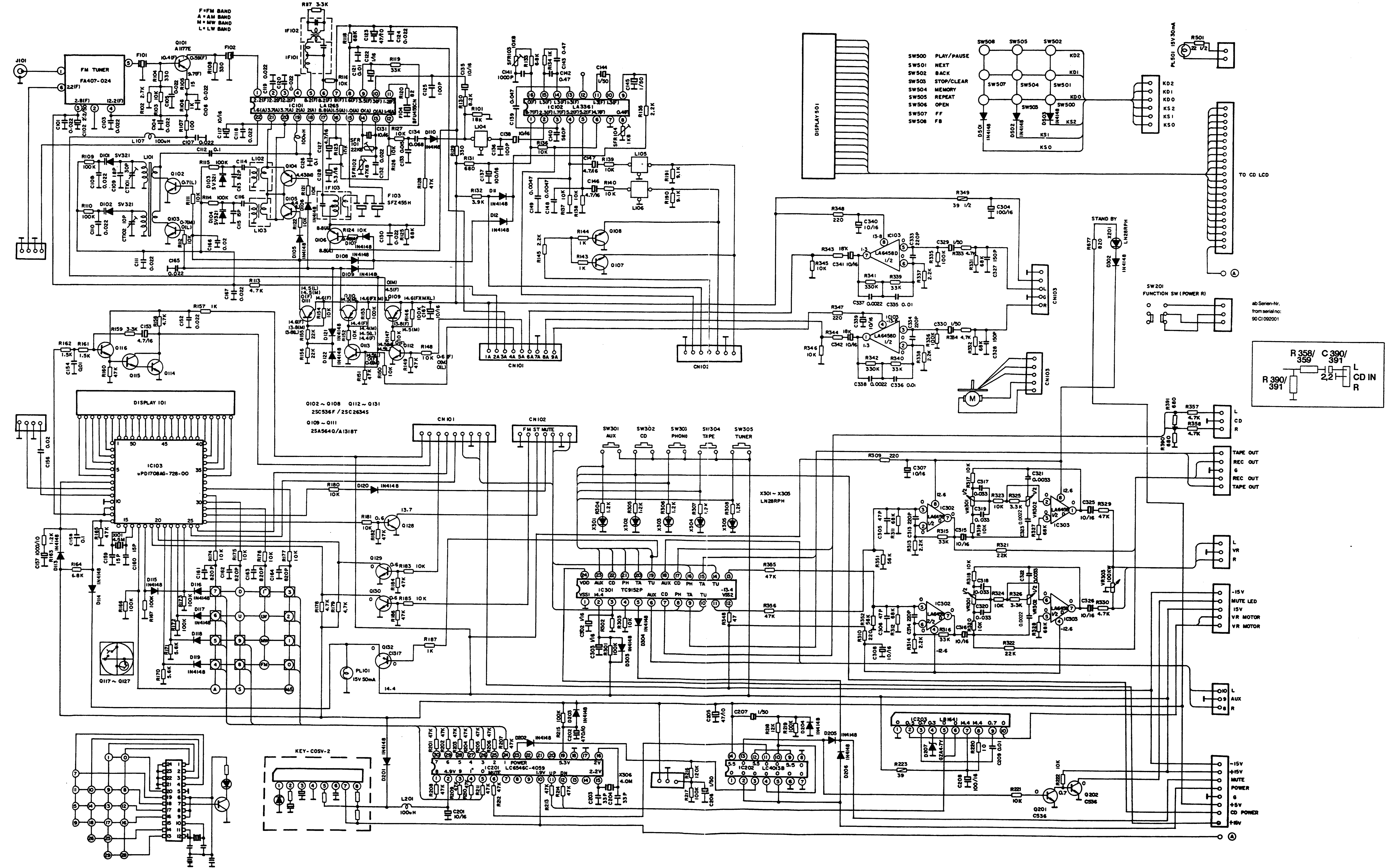
Verdrahtungsplan
Wiring diagram


YV03GD8000
YZDF241IM0
YWAC131CC0
YWAC131CC2
WP005700CK
WP045250CJ
YV03GD101A
WD14553000I
WS81326FCE
WS11357FCE
WD14C25001
WD14620001
WD14925001
WD14340001
WSA1530FCE
WD14870001
YV10GD101A
YV07GD101A
TO CD
YV03GC211A
YV09GD151A
TO PLAYER
YZDH650K00
YV03GD251A
YV03GD281A
WD14233001
WP01235AC0
YZDF681EM0
YGCG261BE8
YGFG361BA8
YGFG361BA1
YGFG361BA6
YWAC271BJ3
MOTOR
YWAC281BJ8
YWAC181CJ4
YWAC181CJ5
YWAC221CJ2
YWAC221CJ7
YWAC141CJ0
YWAC141CJ2
YWAC141CJ4
YWAC141CJ5
YWAC221CJ0
R/P H/D
YWAC221CJ6
E H/D
PLAY H/D
YWAC161CJ3
YWAC161CJ2
YWAC261CJ3
YWAC261CJA
POWER TRANSFORMER
AC 220V

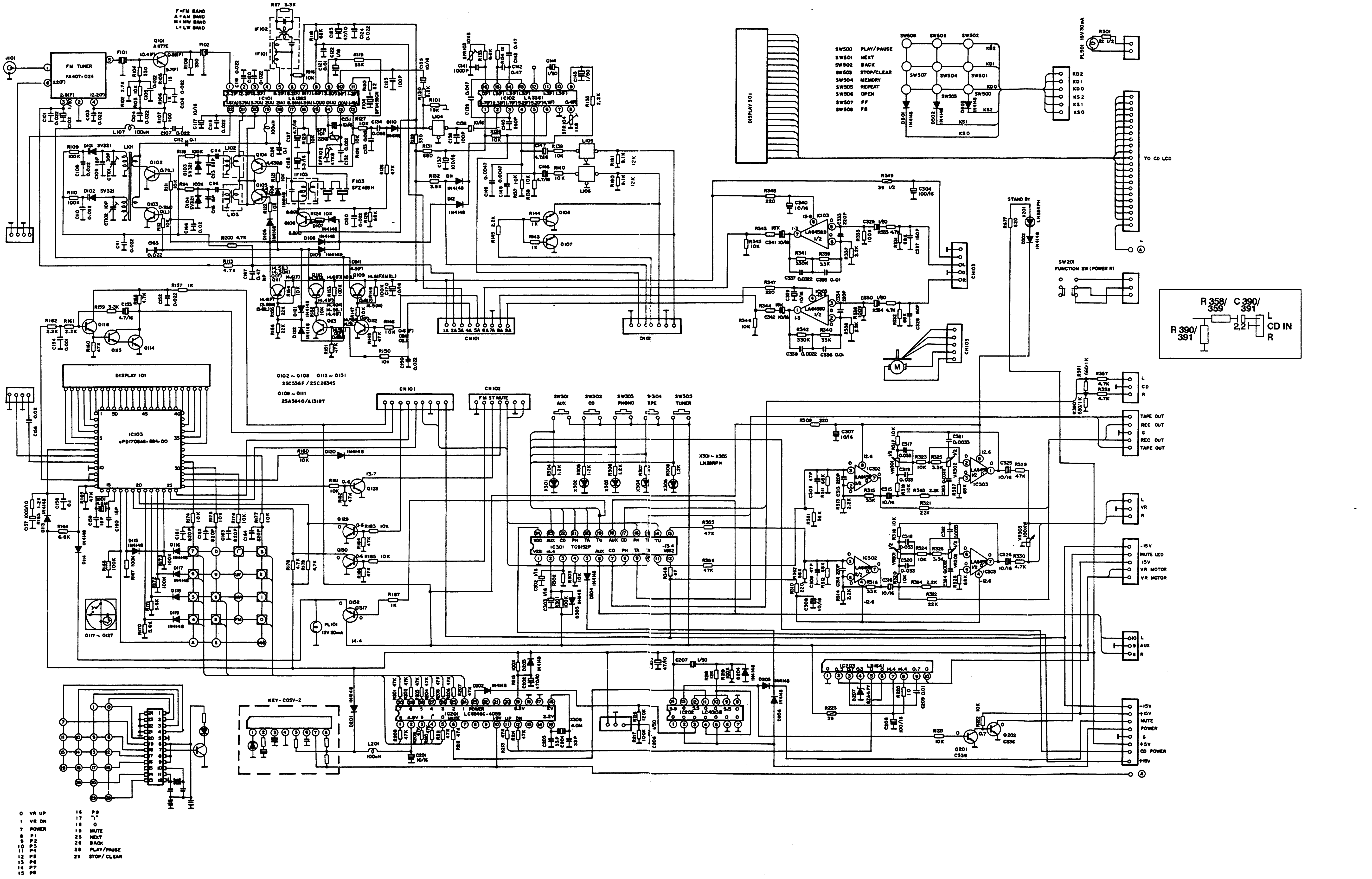
Schaltbild HF (Serien-Nr. 90 CI 088001-90 CI 095500)
Circuit diagram RF (serial no. 90 CI 088001-90 CI 095500)


F=FM BAND
A=AM BAND
M=MW BAND
L=LW BAND
J101
FM TUNER
FA407-024
Q101 A1177E
IF101
IF102
IC101 LA1265
IC102 LA3361
F103 SFZ455H
L107 100uH
DISPLAY 501
SW500 PLAY/PAUSE
SW501 NEXT
SW502 BACK
SW503 STOP/CLEAR
SW504 MEMORY
SW505 REPEAT
SW506 OPEN
SW507 FF
SW508 FB
KD2
KD1
KD0
KS2
KS1
KS0
D501 IN4148
D502 IN4148
D503 IN4148
PL501 15V 30mA
R501 22 1/2
TO CD LCD
IC103 LA6458D
CN103
STAND BY
X201 LN28RPH
SW201
FUNCTION SW (POWER R)
R 358/359
C 390/391
R 390/391
2,2
L
CD IN
R
CN101
CN102
FM ST MUTE
Q102 ~ Q108 Q112 ~ Q131
2SC536F / 2SC2634S
Q109 ~ Q111
2SA564Q/A1318T
DISPLAY 101
IC103
uPD1708AG-728-00
X101 4.5M
Q117 ~ Q127
PL101 15V 50mA
Q132 C1317
SW301 AUX
SW302 CD
SW303 PHONO
SW304 TAPE
SW305 TUNER
X301 ~ X305 LN28RPH
IC301 TC9152P
IC302 LA6458
IC303 LA6458
VR301
VR302
VR303 100KW
L
CD
R
TAPE OUT
REC OUT
G
REC OUT
TAPE OUT
VR
-15V
MUTE LED
15V
VR MOTOR
VR MOTOR
AUX
KEY-COSV-2
L201 100uH
IC201 LC6546C-4059
POWER
UP
DN
MUTE
X306 4.0M
IC202 LC4013B
IC203 LB1641
Q201 C536
Q202 C536
-15V
+15V
MUTE
POWER
G
+5V
CD POWER
+15V
A

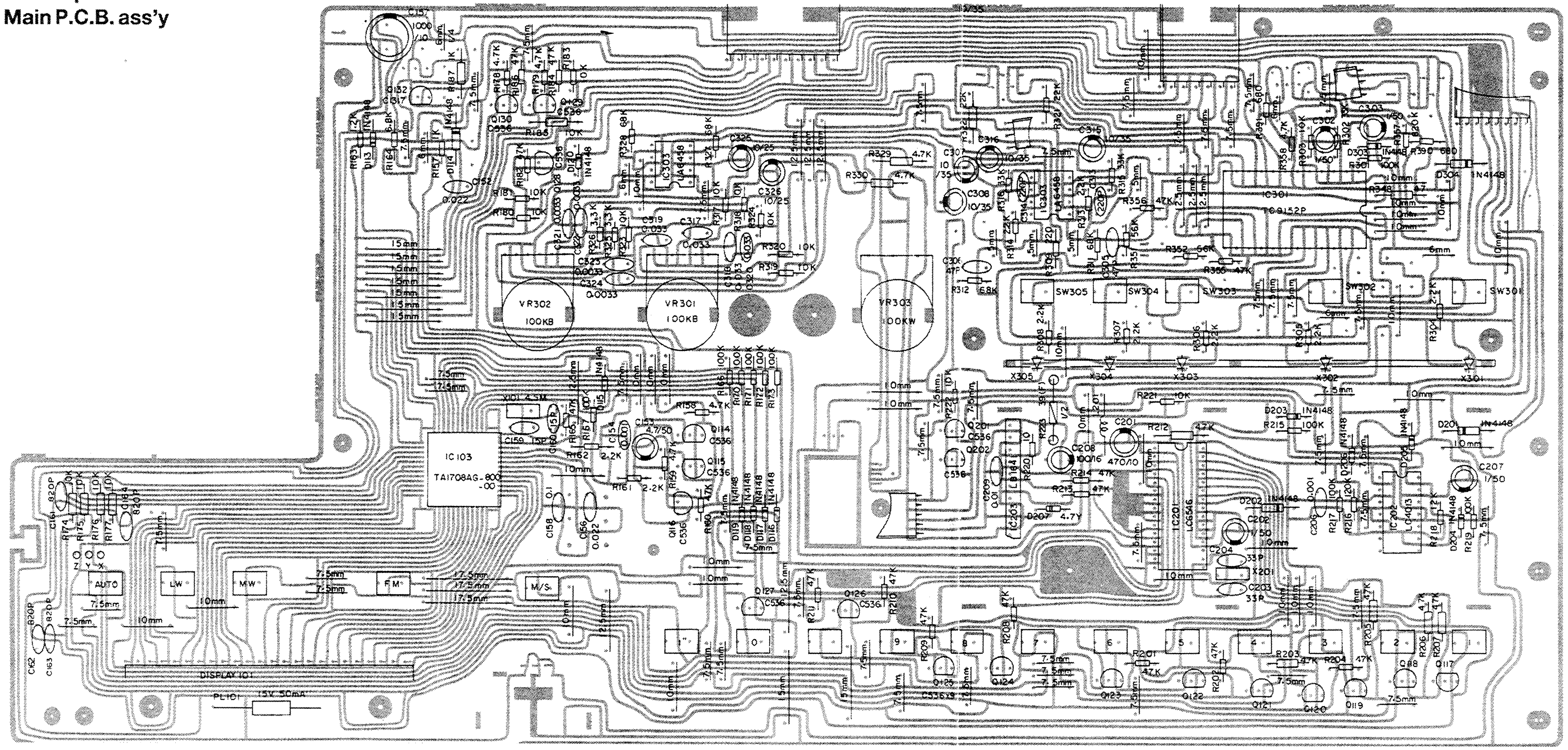
ab Serien-Nr.
from serial no:
90 CI 092001

0	VR UP	16	P9
1	VR DN	17	"1"
7	POWER	18	O
8	P1	19	MUTE
9	P2	25	NEXT
10	P3	26	BACK
11	P4	28	PLAY/PAUSE
12	P5	29	STOP/CLEAR
13	P6		
14	P7		
15	P8		

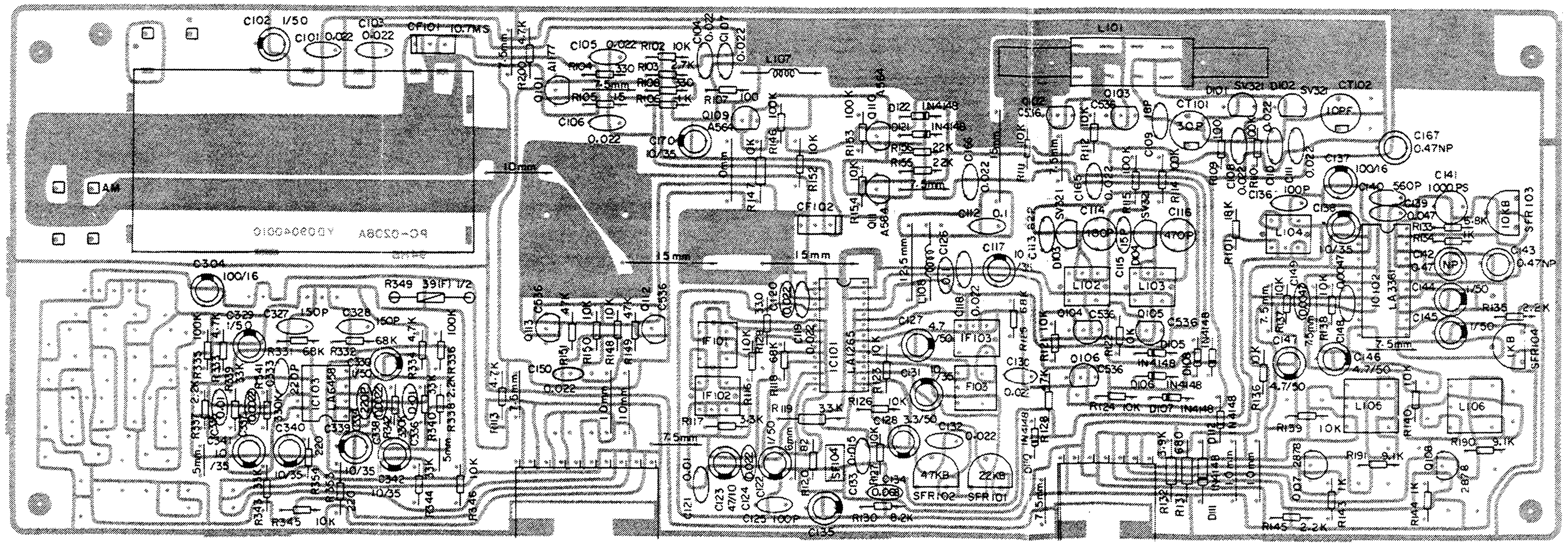
Schaltbild HF (ab Serien-Nr. 90 CI 149001)
Circuit diagram RF (from serial no. 90 CI 149001)


F=FM BAND
A=AM BAND
M=MW BAND
L=LW BAND
FM TUNER
FA407-024
J101
IC101
LA1265
IC102
LA3361
IF102
IF101
IF103
SFZ455H
DISPLAY 101
IC103
uPD1708AG-884-00
Q102~Q108 Q112~Q131
2SC536F / 2SC2634S
Q109~Q111
2SA564Q/A1318T
CN101
CN102
FM ST MUTE
PL101
15V 50mA
Q117~Q127
DISPLAY 501
SW500 PLAY/PAUSE
SW501 NEXT
SW502 BACK
SW503 STOP/CLEAR
SW504 MEMORY
SW505 REPEAT
SW506 OPEN
SW507 FF
SW508 FB
PL501 15V 30mA
TO CD LCD
STAND BY
IC103
LA6458D
CN103
SW201
FUNCTION SW (POWER R)
R 358/359
C 390/391
R 390/391
2,2
L
CD IN
R
CD
TAPE OUT
REC OUT
G
VR
-15V
MUTE LED
15V
VR MOTOR
AUX
+15V
MUTE
POWER
+5V
CD POWER
SW301 AUX
SW302 CD
SW303 PHONO
SW304 TAPE
SW305 TUNER
X301~X305
LN28RPH
IC301
TC9152P
IC302
IC303
VR303
KEY-COSV-2
IC201
LC6546C-4059
IC202
LC4013B
IC203
X306
4.0M
Q201
C536
Q202
C536
0 VR UP
1 VR DN
7 POWER
8 P1
9 P2
10 P3
11 P4
12 P5
13 P6
14 P7
15 P8
16 P9
17 "1"
18 0
19 MUTE
25 NEXT
26 BACK
28 PLAY/PAUSE
29 STOP/CLEAR

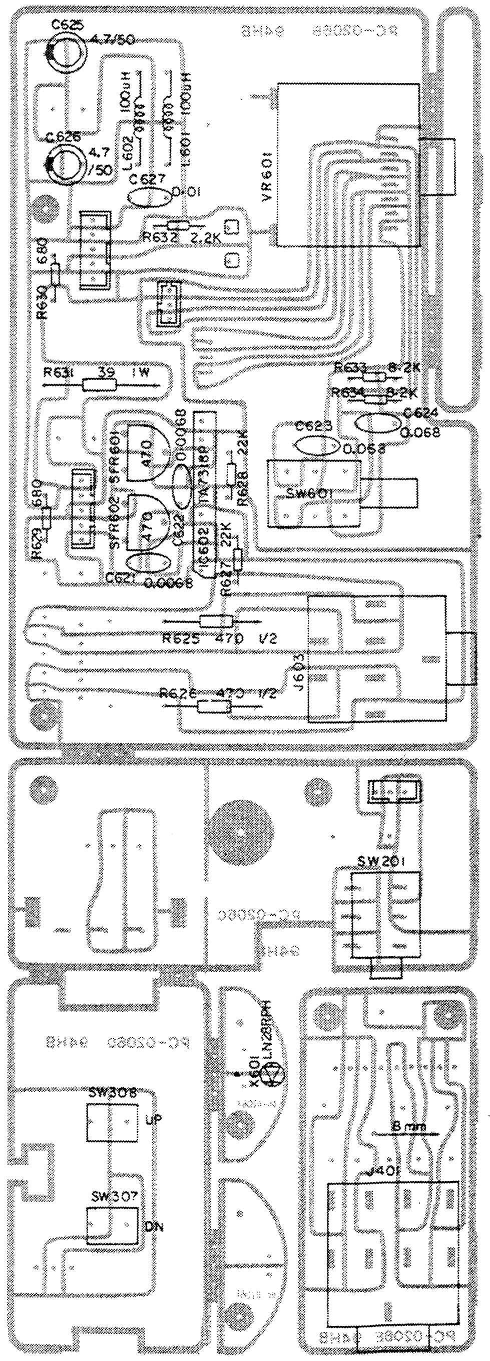
Bestückungsseite/Top view
Grundplatine Audio
Main P.C.B. ass'y


IC103
TA1708AG-800-00
IC201
LC6546
IC301
IC303
VR302
100KB
VR301
100KB
VR303
100KW
SW305
SW304
SW303
SW302
SW301
AUTO
LW
MW
FM
M/S
DISPLAY 101
PL101 15V 50mA

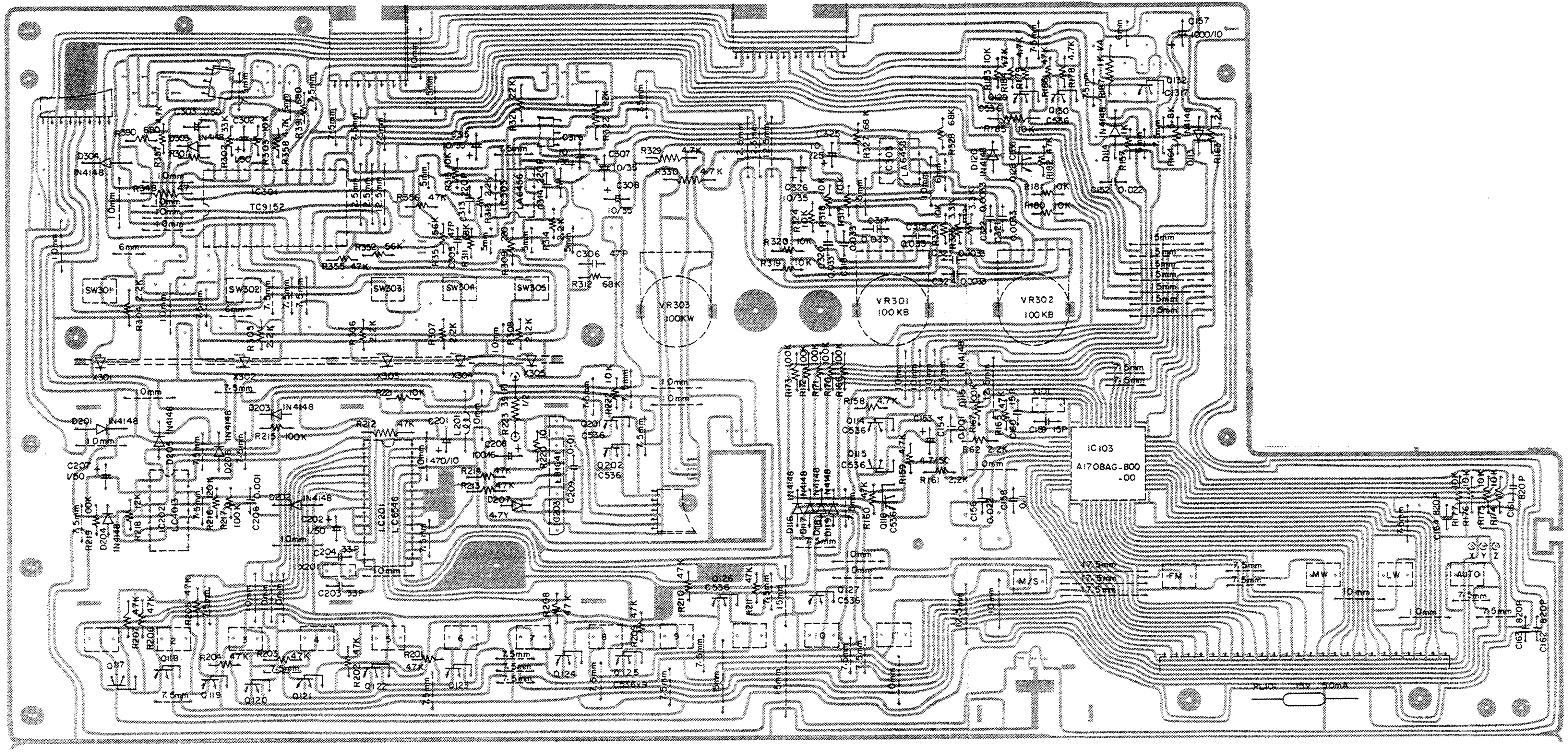
Tunerplatine
Tuner P.C.B. ass'y


L101
IC101
LA1265
IC102
LA3361
IC103
LA6458
CF101 10.7MS
CF102
SFR101
SFR102
SFR103
SFR104
L102
L103
L104
L106
PC-0208A YD0904001C

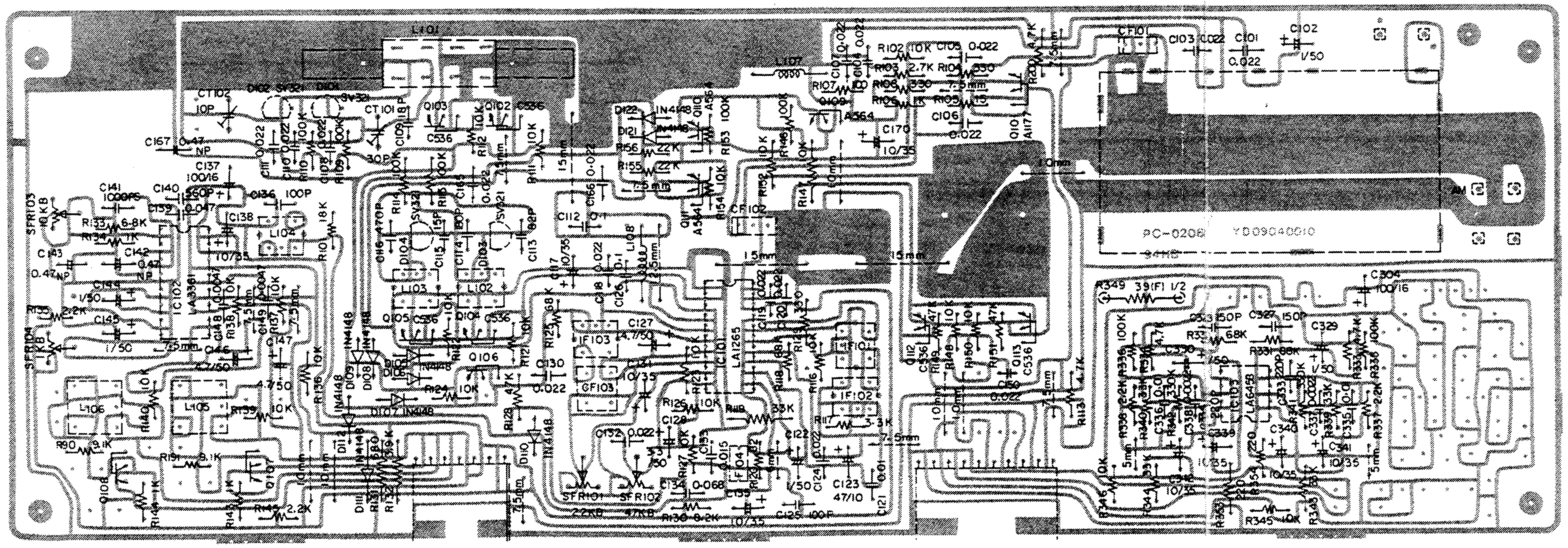
Platinendarstellung
Volumenregler
Mixing und Netzschalter
Mikrofonbuchse
Tuning
P.C.B. diagram
VR P.C.B.
Mixing VR/Function P.C.B.
Mic. jack P.C.B.
Tuning P.C.B.


VR601
SW601
SFR601
SFR602
J603
PC-0206B 94HB
SW201
SW306
UP
SW307
DN
J401

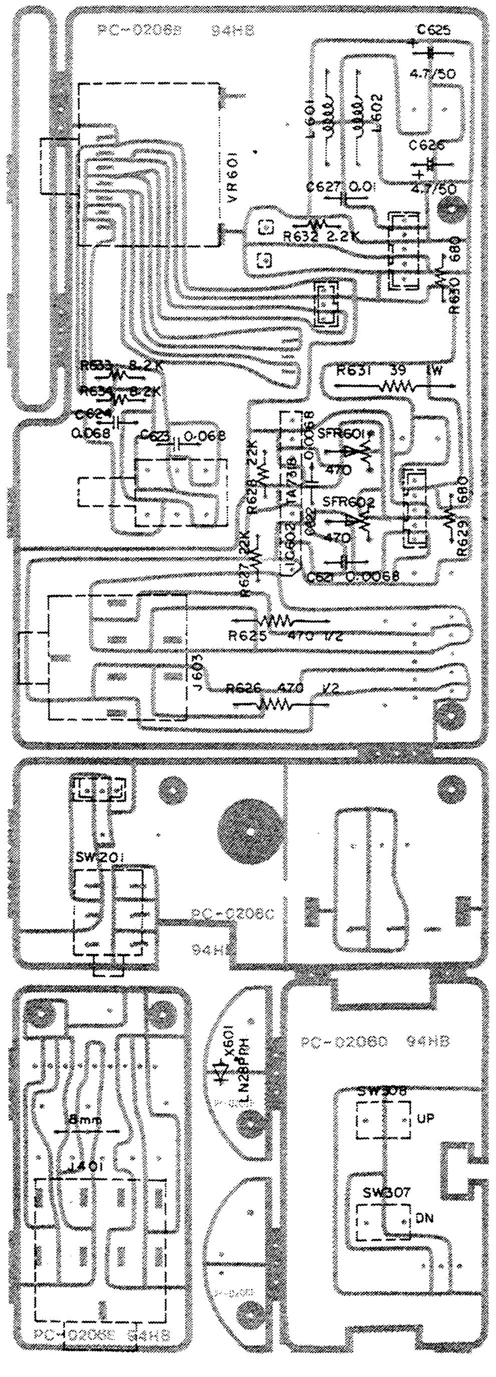
Leiterbahnseite/Bottom view
Grundplatine Audio
Main P.C.B. ass'y


SW301
SW302
SW303
SW304
SW305
VR303 100KW
VR301 100KB
VR302 100KB
TC9152
LA6456
LA6458
LC6516
IC103 A1708AG-800-00
M/S
FM
MW
LW
AUTO
PL101 15V 50mA
C157 1000/10

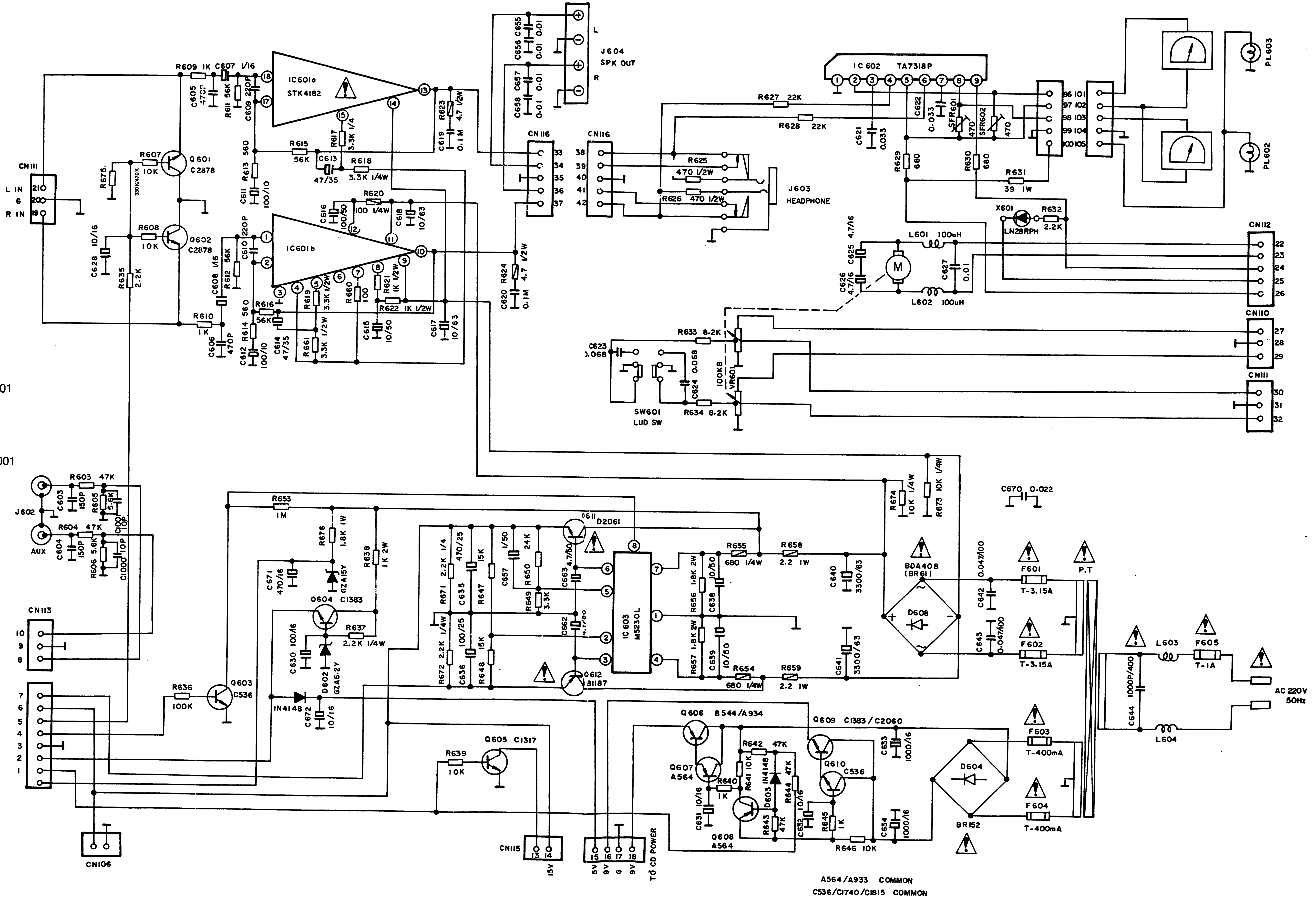
Tunerplatine
Tuner P.C.B. ass'y


L101
LA1265
LA6458
PC-0206 YD09040010
94HB
SFR101
SFR102
SFR103 10KB
SFR104

Platinendarstellung
Volumenregler
Mixing und Netzschalter
Mikrofonbuchse
Tuning
P.C.B. diagram
VR P.C.B.
Mixing VR/Function P.C.B.
Mic. jack P.C.B.
Tuning P.C.B.


PC-0206B 94HB
VR601
SFR601
SFR602
J603
SW201
PC-0206C
PC-0206D 94HB
SW306 UP
SW307 DN
PC-0206E 94HB

Schaltbild Netzteil/Endstufe
Circuit diagram power supply/output amplifier



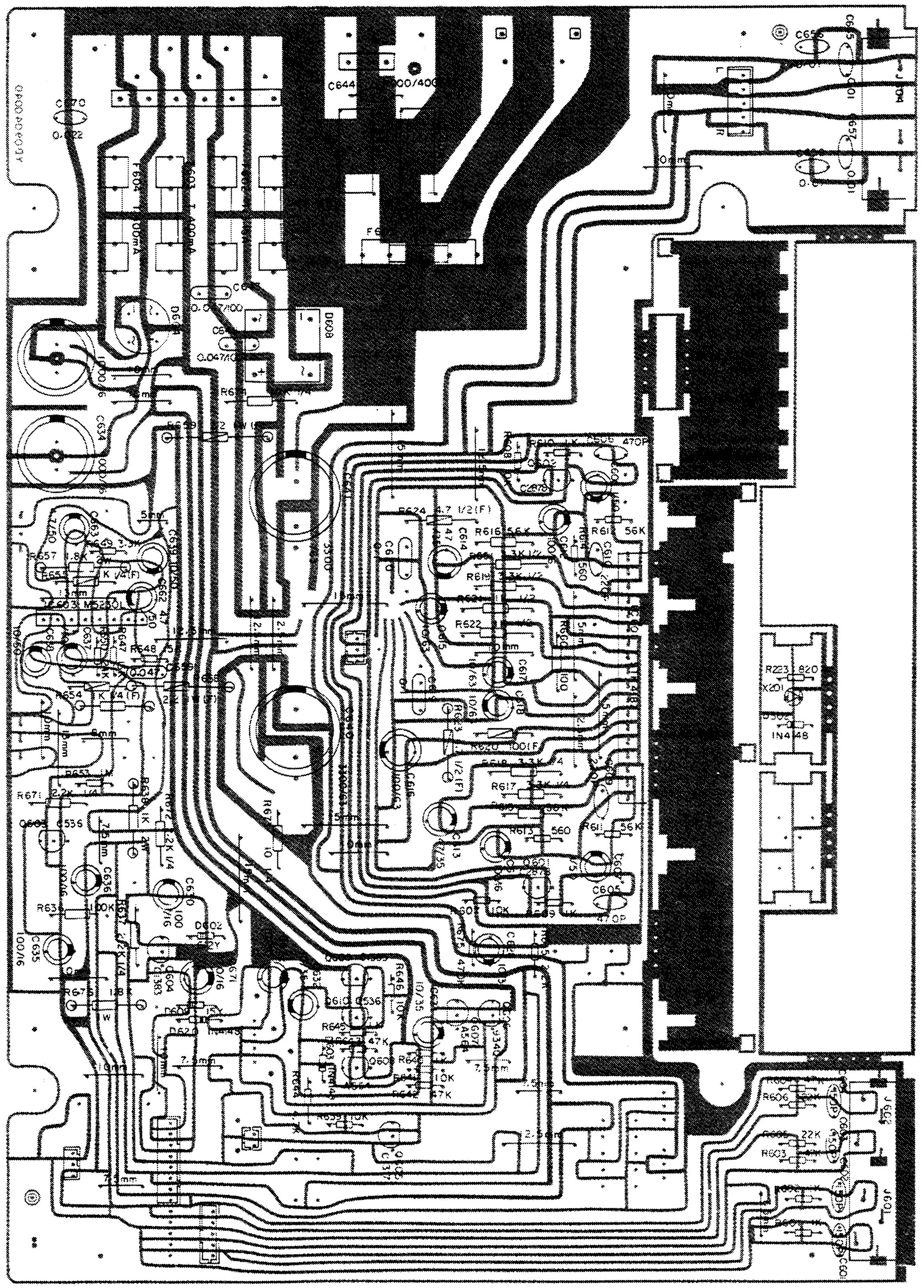
IC601a
STK4182
IC601b
IC602 TA7318P
IC603 M5230L
Q601 C2878
Q602 C2878
Q603 C536
Q604 C1383
Q605 C1317
Q606 B544/A934
Q607 A564
Q608 A564
Q609 C1383/C2060
Q610 C536
Q611 D2061
Q612 31187
J604 SPK OUT
J603 HEADPHONE
J602
AUX
L IN
R IN
L
R
CN111
CN116
CN112
CN110
CN113
CN106
CN115
TO CD POWER
5V
9V
G
15V
SW601 LUD SW
VR601 100KB
X601 LN28RPH
L601 100uH
L602 100uH
L603
L604
F601 T-3.15A
F602 T-3.15A
F603 T-400mA
F604 T-400mA
F605 T-1A
BDA40B (BR61)
D608
D604
BR152
P.T
AC 220V 50Hz
PL603
PL602
SFR601
SFR602
D602 GZA6.2Y
D603 IN4148
GZA15Y
IN4148
A564/A933 COMMON
C536/C1740/C1815 COMMON

Hinweis:
ab Serien-Nr. 90 CI 149001
R 605/606 ≙ 15 KΩ
C 1000/1001 ≙ 100 pF

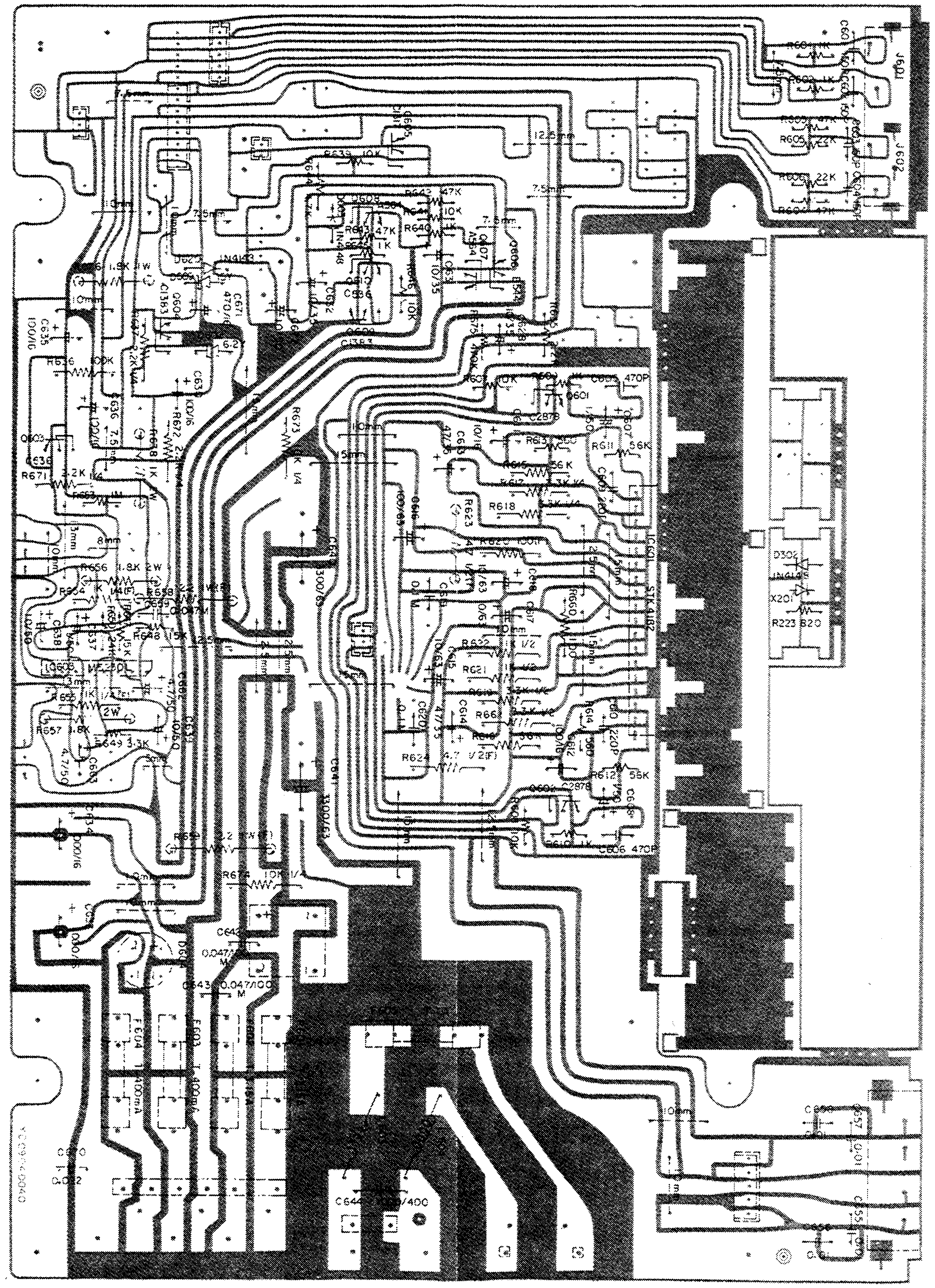
Note:
from serial no. 90 CI 149001
R 605/606 ≙ 15 KΩ
C 1000/1001 ≙ 100 pF

Platinendarstellung Netzteil/Endstufe
P.C.B. diagram power supply/output amplifier

Bestückungsseite/Top view

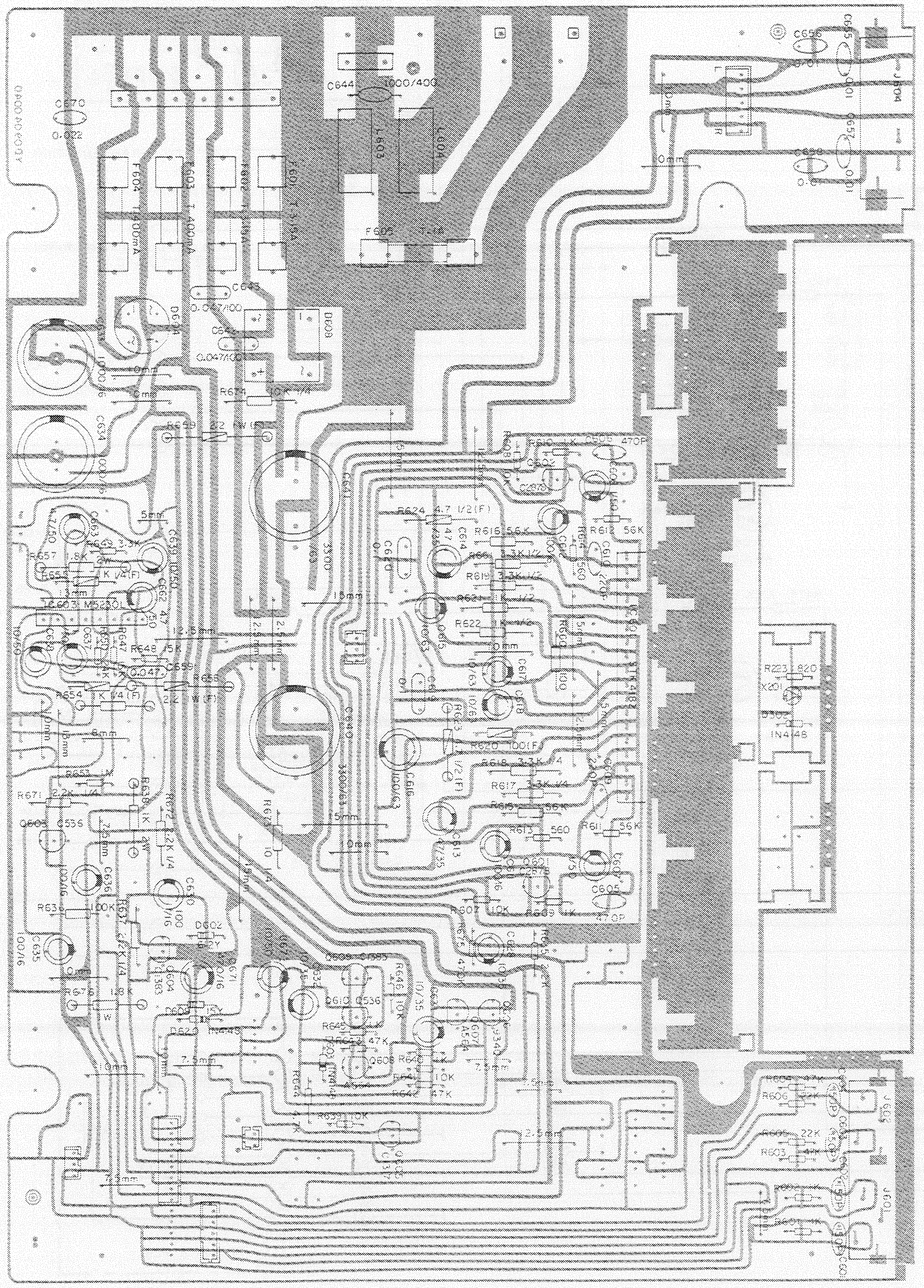

C644
100/400
F604
F603
D608
0.047/100
R624 4.7 1/2(F)
R616 56K
R612 56K
C606 470P
C605 470P
R617
R613
R611 56K
R618 3.3K
R622
R223 820
1N4148
R657 1.8K
R654
R648
R671 2.2K
R653
R675
R663
C636
D604
D602
R646
R606
R605 22K
R603
J602
J601

Leiterbahnseite/Bottom view

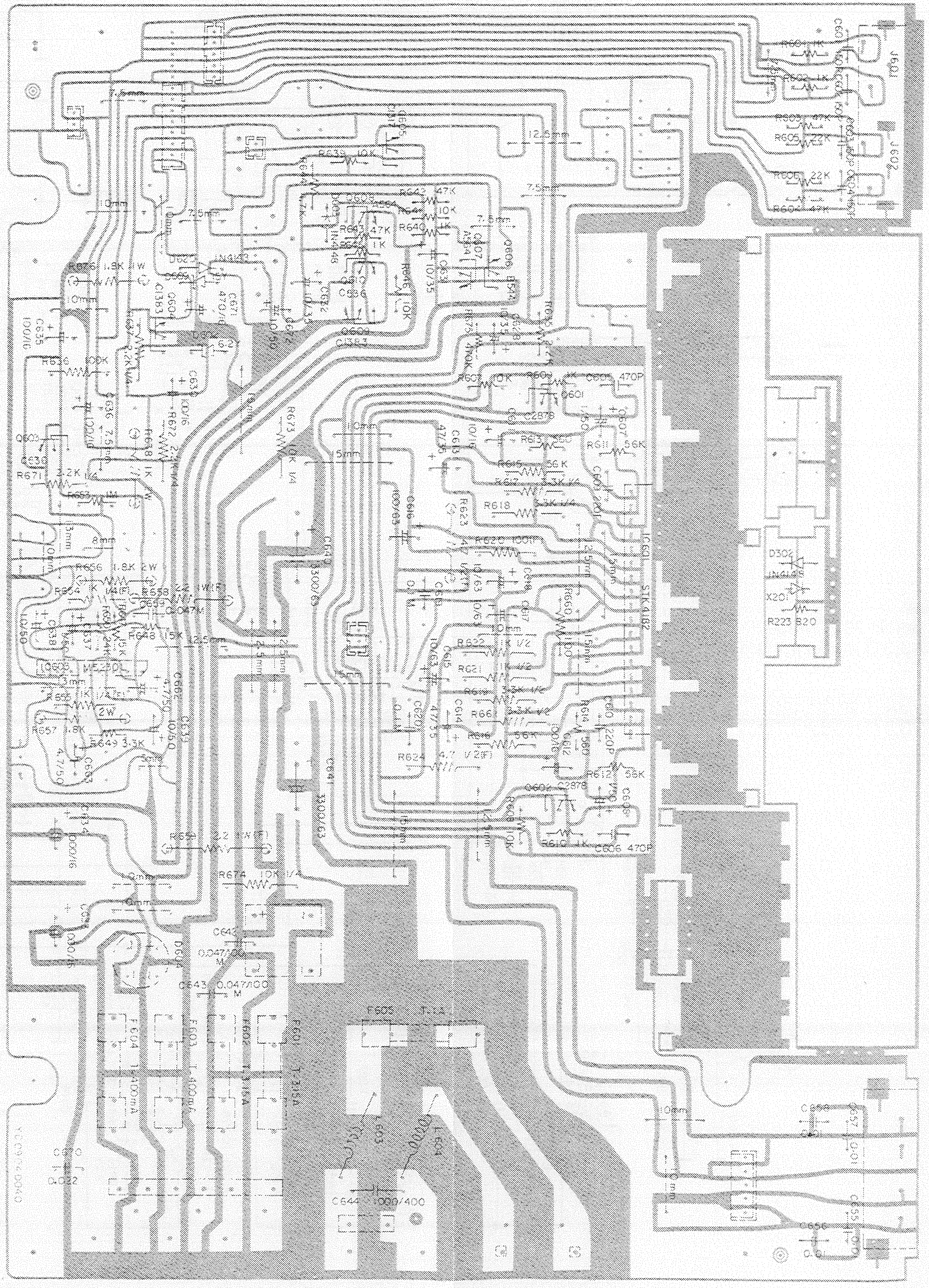

J601
J602
R604
R605 22K
R606 22K
R639 10K
R643 47K
R640 10K
1N4148
12.5mm
7.5mm
C653 470P
R611 56K
R612 56K
R613
R618
R623
R621
R624 4.7 1/2(F)
C606 470P
D301
X201
R223 820
R656 1.8K 2W
R657 1.8K
R671 2.2K
R636 100K
R673
R672 10K 1/4
C641 3300/63
C643 0.047/100
F604
F603
C644
/400
10mm

Platinendarstellung Netzteil/Endstufe
P.C.B. diagram power supply/output amplifier

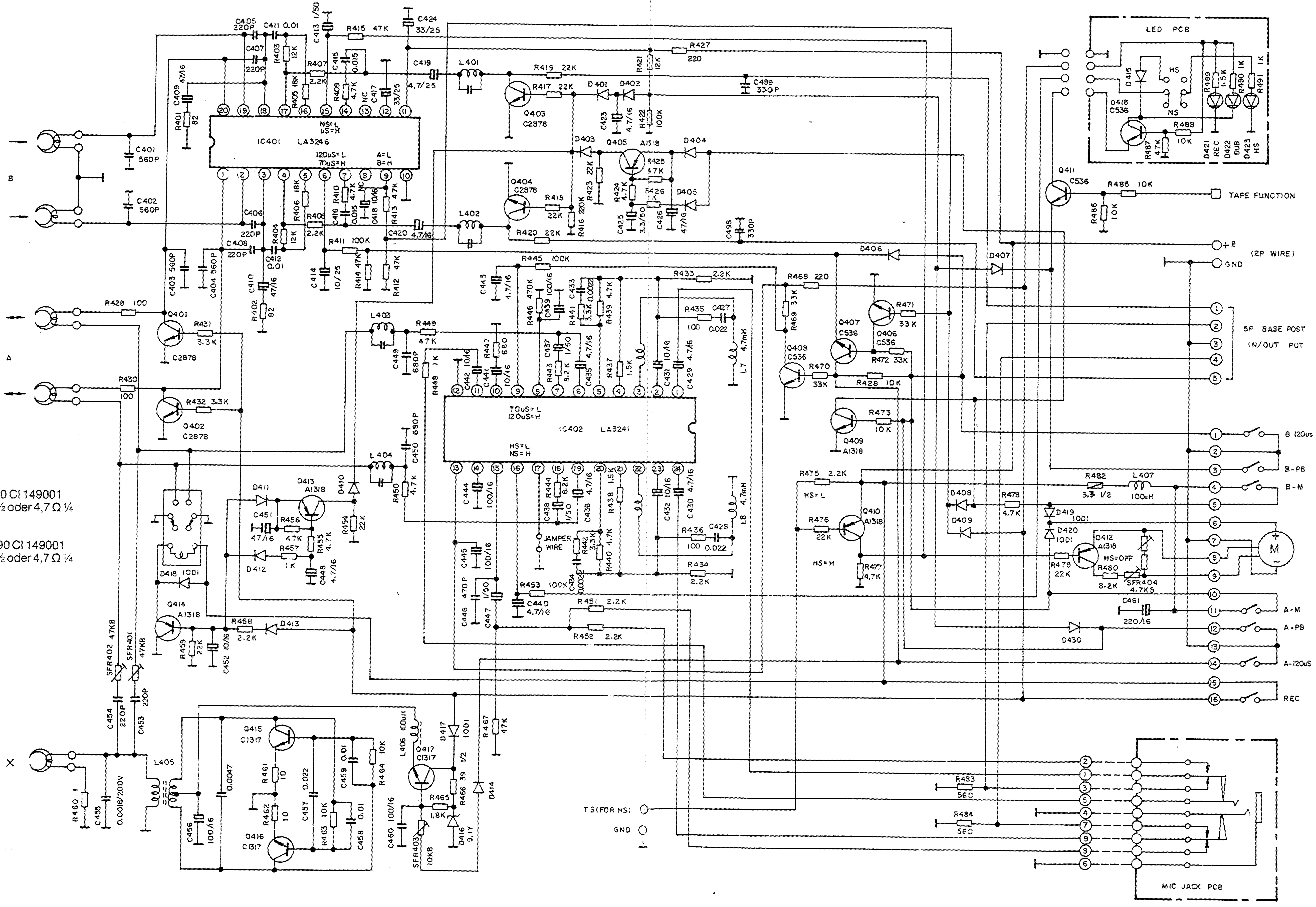
Bestückungsseite/Top view



Leiterbahnseite/Bottom view



Schaltbild Recorder
Circuit diagram tape

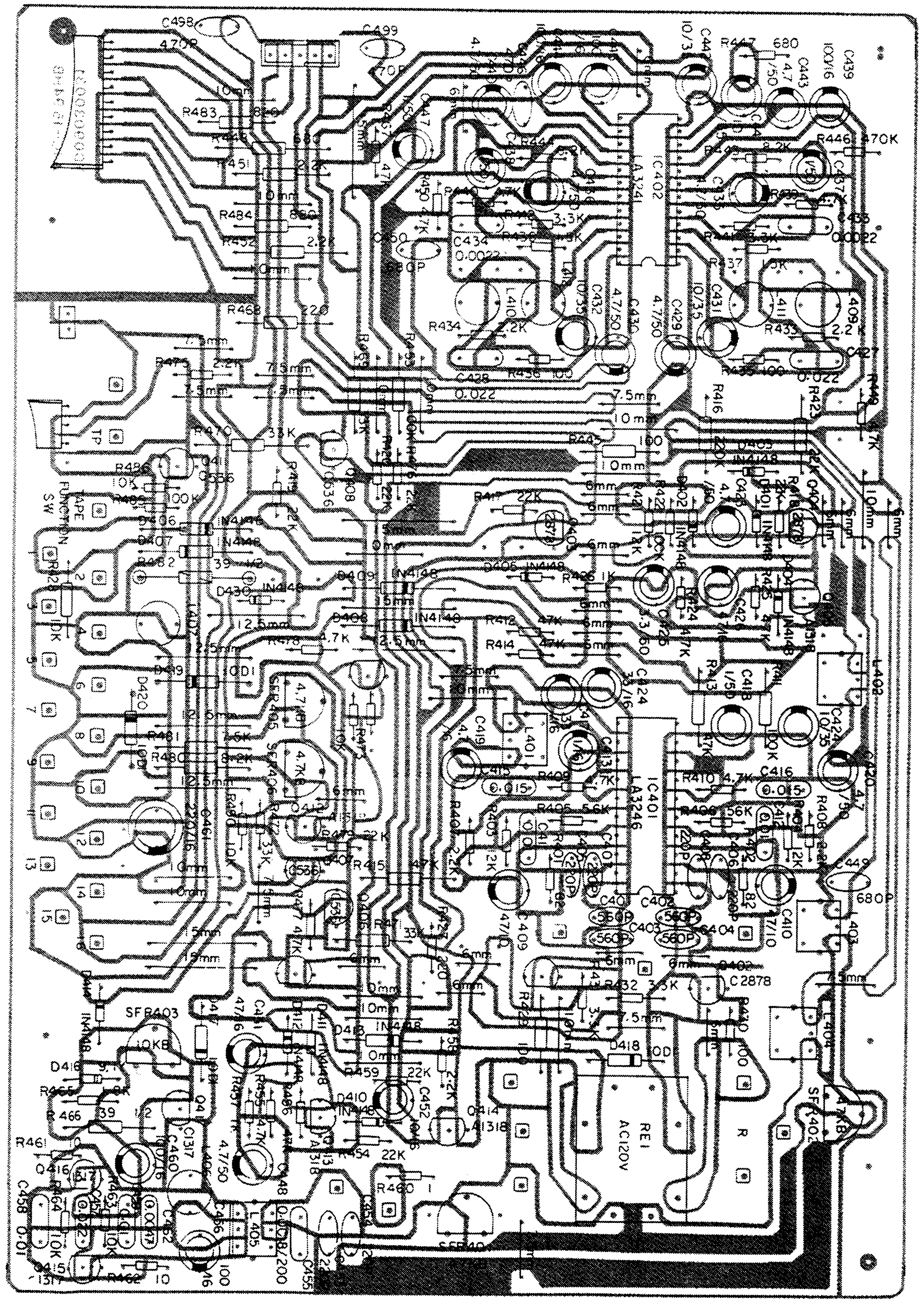

IC401 LA3246
NS=L
uS=H
120uS=L
70uS=H
A=L
B=H
IC402 LA3241
70uS=L
120uS=H
HS=L
NS=H
C405 220P
C411 0.01
C413 1/50
R415 47K
C424 33/25
C407 220P
R403 12K
R407 2.2K
C415 0.015
R405 18K
R409 4.7K
NC
C417 33/25
C418 4.7/25
L401
R419 22K
R421 12K
R427 220
C499 330P
R417 22K
D401
D402
C423 4.7/16
R422 100K
Q403 C2878
C409 47/16
R401 82
C401 560P
C402 560P
B
A
X
D403
Q405 A1318
D404
R425 47K
R426
D405
R424 4.7K
R423 22K
C425 3.3/50
C426 47/16
Q404 C2878
R418 22K
R416 220K
C498 330P
C406 220P
R404 12K
R406 18K
R408 2.2K
C416 0.015
R410 4.7K
C418 10/16
R413 47K
C420 4.7/16
L402
R420 22K
C408 220P
C412 0.01
R411 100K
C403 560P
C404 560P
C410 47/16
R402 82
C414 10/25
R414 47K
R412 47K
R429 100
Q401 C2878
R431 3.3K
R430 100
Q402 C2878
R432 3.3K
L403
R449 47K
C449 680P
R448 1K
C442 10/16
C441 10/16
R447 680
R445 100K
C443 4.7/16
R446 470K
C439 100/16
C433 0.0022
R441 3.3K
R439 4.7K
R433 2.2K
R435 100
C427 0.022
L7 4.7mH
C437 1/50
R443 9.2K
C435 4.7/16
R437 1.5K
C431 10/16
C429 4.7/16
C450 680P
L404
R450 4.7K
C444 100/16
R444 8.2K
C438 1/50
C436 4.7/16
R438 1.5K
C432 10/16
C430 4.7/16
L8 4.7mH
R436 100
C428 0.022
JAMPER WIRE
R442 3.3K
R440 4.7K
C434 0.0022
R434 2.2K
C445 100/16
C446 470P
C447 1/50
R453 100K
C440 4.7/16
R451 2.2K
R452 2.2K
D411
Q413 A1318
D410
C451 47/16
R456 47K
R455 4.7K
R454 22K
R457 1K
D412
C448 4.7/16
D418 10D1
Q414 A1318
R458 2.2K
D413
R459 22K
C452 10/16
SFR402 47KB
SFR401 47KB
C454 220P
C453 220P
L405
R460 1
C455 0.0018/200V
C456 100/16
0.0047
Q415 C1317
R461 10
C457 0.022
C459 0.01
R464 10K
R462 10
R463 10K
C458 0.01
Q416 C1317
L406 100uH
Q417 C1317
D417 10D1
R467 47K
R466 39 1/2
D414
R465 1.8K
D416 9.1Y
C460 100/16
SFR403 10KB
R468 220
R469 33K
Q407 C536
R471 33K
Q406 C536
Q408 C536
R470 33K
R472 33K
R428 10K
R473 10K
Q409 A1318
D406
D407
R475 2.2K
HS=L
R476 22K
Q410 A1318
HS=H
R477 4.7K
R482 3.3 1/2
L407 100uH
D408
D409
R478 4.7K
D419 10D1
D420 10D1
Q412 A1318
HS=OFF
R479 22K
R480 8.2K
SFR404 4.7KB
C461 220/16
D430
M
+
−
LED PCB
D415
HS
NS
Q418 C536
R487 4.7K
R488 10K
R489 1.5K
R490 1K
R491 1K
D421 REC
D422 DUB
D423 HS
Q411 C536
R485 10K
R486 10K
TAPE FUNCTION
+B
GND
(2P WIRE)
5P BASE POST IN/OUT PUT
B 120us
B-PB
B-M
A-M
A-PB
A-120uS
REC
R493 560
R494 560
TS(FOR HS)
GND
MIC JACK PCB

Hinweis:
ab Serien-Nr. 90 CI 149001
R 482 ≙ 3,3 Ω ½ oder 4,7 Ω ¼

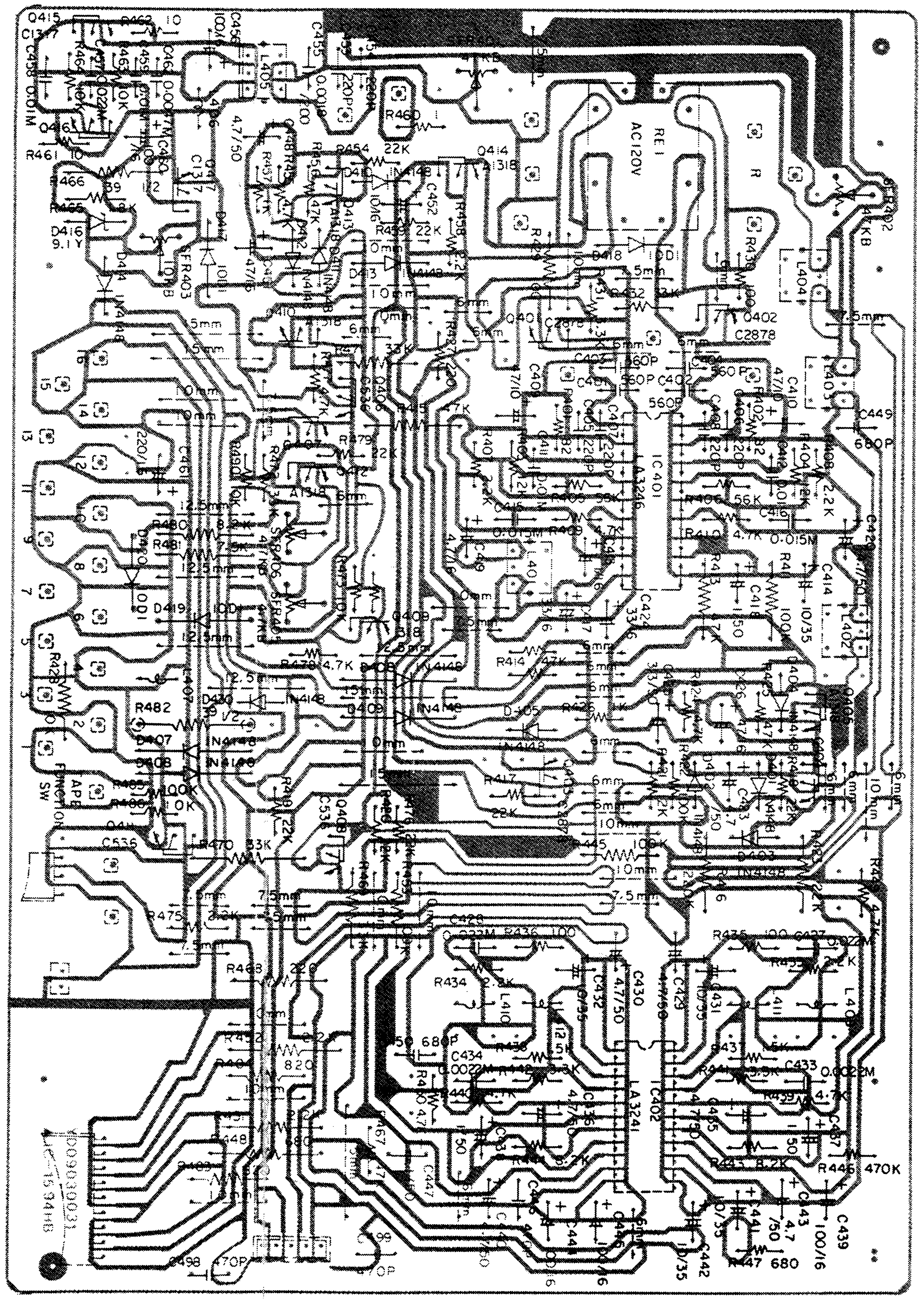
Note:
from serial no. 90 CI 149001
R 482 ≙ 3,3 Ω ½ oder 4,7 Ω ¼

Recorderplatine
Tape P.C.B.

Bestückungsseite/Top view

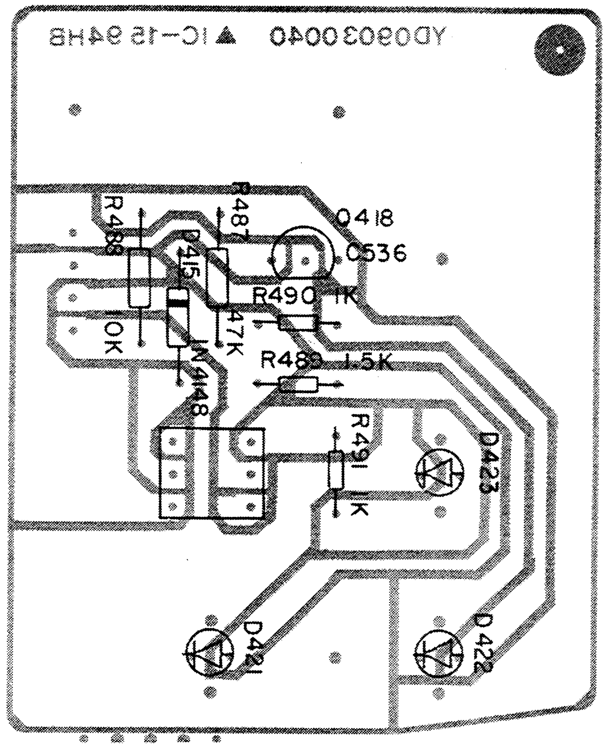

IC402 LA3241
IC401 LA3246
RE1 AC120V
FUNCTION SW
SFR403
C2878
R446 470K
R447 680

Leiterbahnseite/Bottom view

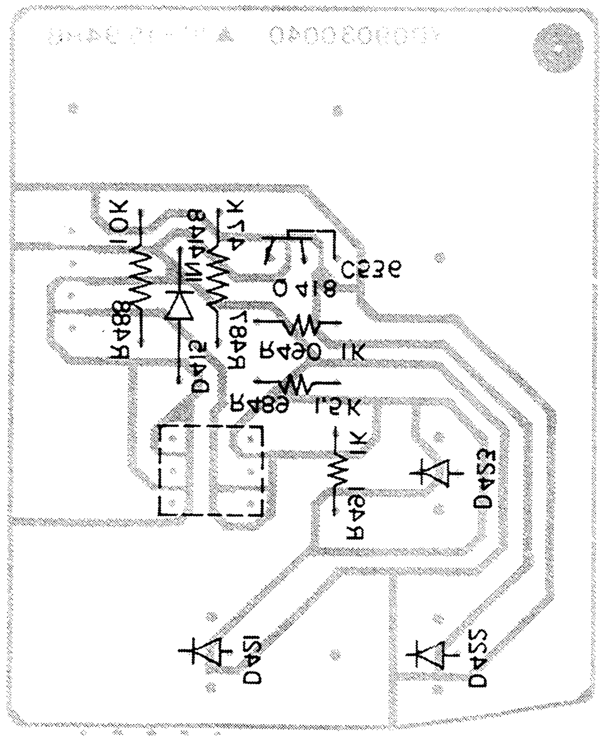

IC401 LA3246
IC402 LA3241
RE1 AC120V
FUNCTION SW
YD0903003
IC-15 94HB
R446 470K
R447 680

Funktionsplatine Cassette
Tape function P.C.B.

Bestückungsseite/Top view

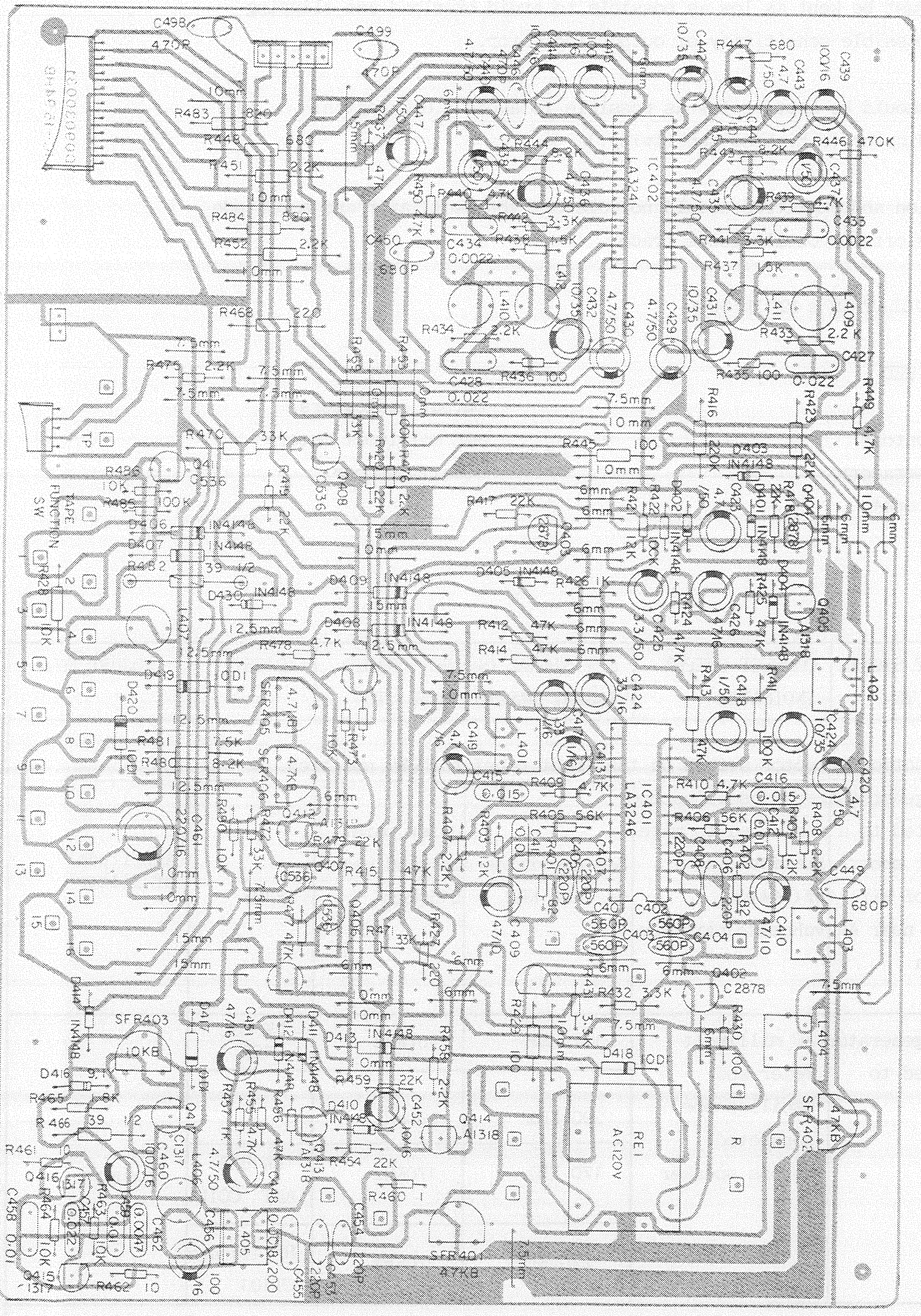

YD0903 0040 ▲ IC-15 94HB
R488 10K
R487 47K
D415 IN4148
Q418
C536
R490 1K
R489 1.5K
R491 1K
D423
D421
D422

Leiterbahnseite/Bottom view



Recorderplatine
Tape P.C.B.

Bestückungsseite/Top view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LA3246
IC402
LA3241
REI
AC120V
SFR401
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SFR402
4.7KB
SFR403
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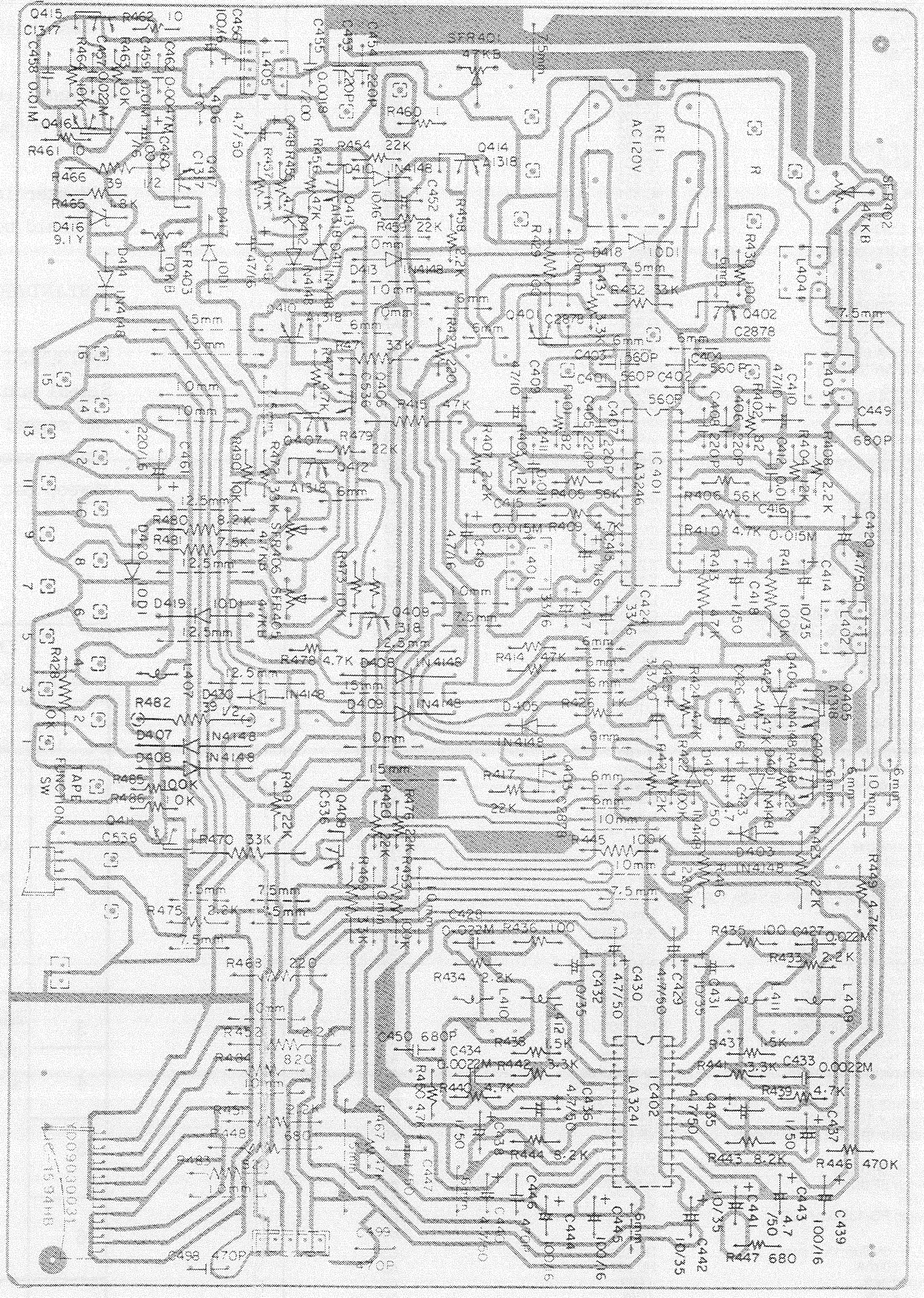
TAPE
FUNCTION
SW
TP

Leiterbahnseite/Bottom view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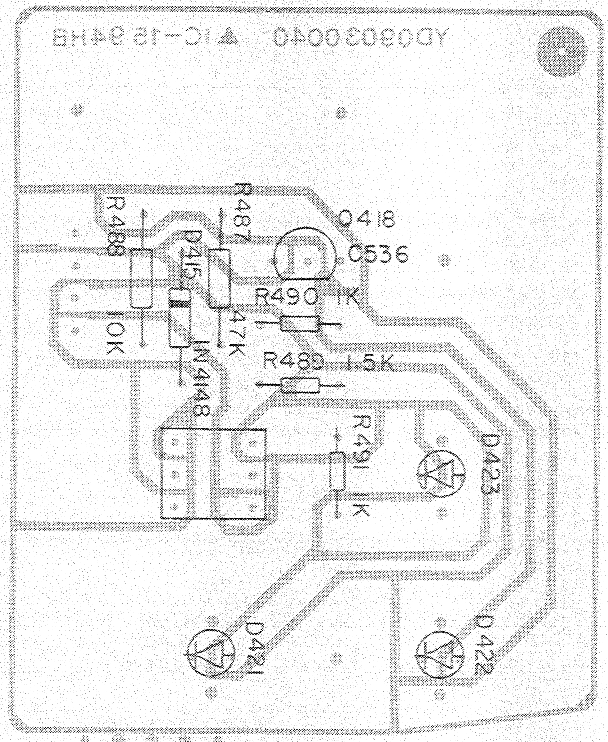
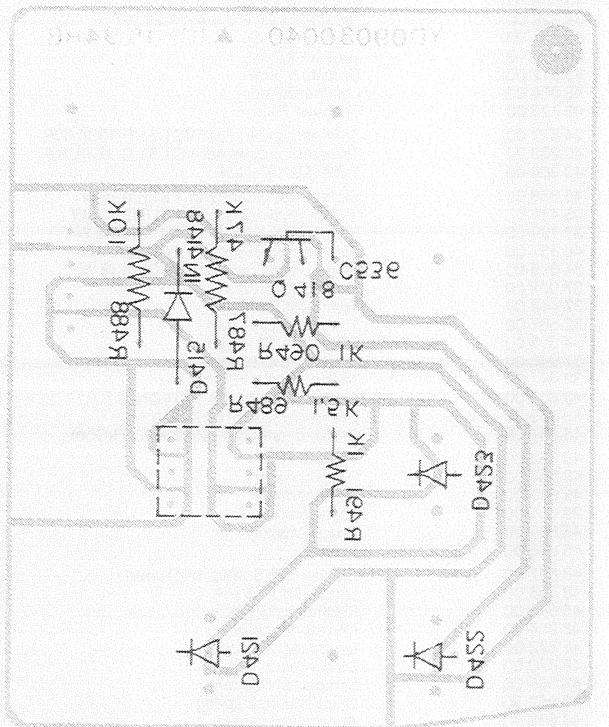
LA3246
IC402
LA3241
REI
AC120V
SFR401
4.7KB
SFR402
4.7KB
TAPE
FUNCTION
SW

Funktionsplatine Cassette
Tape function P.C.B.

Bestückungsseite/Top view


YD0903 0040 ▲IC-15 94HB
R488
10K
R487
47K
D415
IN4148
Q418
C536
R490 1K
R489 1.5K
R491 1K
D423
D421
D422

Leiterbahnseite/Bottom view



Ersatzteilliste elektrische Teile (ohne CD-Player)
Spare parts list electrical parts (without CD player)

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe/ Price key
48 899 00	Grundplatine Audio	Main P.C.B. assembly		F1
48 900 00	Tunerplatine	Tuner P.C.B. assembly		F0
48 901 00	Platine Cassette	Tape P.C.B. assembly		E3
48 902 00	Volumenreglerplatine	VR P.C.B. assembly		C6
48 903 00	Mixing + Netzschalterplatine	Mixing VR/Function P.C.B.		A9
48 904 00	Funktionsplatine Cassette	Tape function P.C.B. assembly		B5
48 905 00	Funktionsplatine CD	CD function P.C.B. assembly		D5
48 906 00	IR Sensorplatine	RC sensor P.C.B. assembly		C0
48 907 00	Endstufenplatine	Audio P.C.B.		F9
31 481 00	IC UPD 1708AG-728-00	IC UPD 1708AG-728-00	IC 100	D2
48 833 00	IC UPD 1708AG-884-00	IC UPD 1708AG-884-00	IC 100	D3
48 834 00	IC TC 9152 P	IC TC 9152 P	IC 301	C1
46 830 00	IC LC 6546C-4059	IC LC 6546C-4059	IC 201	C4
26 131 00	IC TC 4013 BP	IC TC 4013 BP	IC 202	A8
46 829 00	IC LB 1641	IC LB 1641	IC 203	B2
48 835 00	IC LA 6548 D	IC LA 6548 D	IC 302, 303	A6
48 002 00	IC LA 1265	IC LA 1265	IC 101	B6
21 596 00	IC LA 3361	IC LA 3361	IC 102	B1
23 115 00	IC LA 6458 D	IC LA 6458 D	IC 103	B1
48 908 00	IC TC 7318 P VH-2	IC TC 7318 P VH-2	IC 602	B6
48 837 00	IC STK 4182 II	IC STK 4182 II	IC 601	D8
48 838 00	IC M 5230 L	IC M 5230 L	IC 603	B2
40 799 00	IC LA 3246	IC LA 3246	IC 401	B2
48 909 00	IC LA 3241	IC LA 3241	IC 402	B3
13 545 00	Transistor 2 SC 536 F	Transistor 2 SC 536 F	div.	A3
03 728 00	Transistor 2 SC 1317 R	Transistor 2 SC 1317 R	div.	A5
37 957 00	Transistor 2 SA 1177 E	Transistor 2 SA 1177 E	Q 101	A3
45 988 00	Transistor 2 SA 564 Q	Transistor 2 SA 564 Q	div.	A2
34 691 00	Transistor 2 SC 2878 A	Transistor 2 SC 2878 A	div.	A3
48 841 00	Transistor 2 SD 2061 F	Transistor 2 SD 2061 F	Q 611	A6
48 842 00	Transistor 2 SB 1187 F	Transistor 2 SB 1187 F	Q 612	A7
48 863 00	Transistor 2 SC 2060 Q	Transistor 2 SC 2060 Q	Q 604, 609	A7
48 844 00	Transistor 2 SA 934 Q	Transistor 2 SA 934 Q	Q 606	A3
40 663 00	Transistor 2 SA 1318 T	Transistor 2 SA 1318 T	div.	A2
11 241 00	Diode 1N4148	Diode 1N4148	div.	A2
48 845 00	Zenerdiode HZ 5 B1	Zenerdiode HZ 5 B1	D 207	A1
22 955 00	Diode SVC 321	Diode SVC 321	div.	B4
21 350 00	Zenerdiode HZ 6C2	Zenerdiode HZ 6C2	D 602	A3
48 847 00	Gleichrichter RB 152	Recti diode RB 152	D 604	A5
21 413 00	Zenerdiode GZY 15Y	Zenerdiode GZY 15Y	D 609	A2
48 848 00	Diode BR 61	Diode BR 61	D 608	B2
48 910 00	Gleichrichter 1N4001	Recti diode 1N4001	div.	A1
23 214 00	Zenerdiode HZ 9C1	Zenerdiode HZ 9C1	D 416	A1
29 597 00	Leuchtdiode LN 28 RPL rot	LED LN 28 RPL red	div.	A4
32 768 00	Leuchtdiode LN 48 YPL gelb	LED LN 48 YPL yellow	D 422-423	A4
46 839 00	Keramik Schwingkreis 4,0 MHz	Ceramic resonator 4.0 MHz	X 201	A7
31 482 00	Quarz 4,5 MHz	X'tal 4.5 MHz	X 101	A8
34 320 00	Drossel 100 µH	Choke coil 100 µH	L 201	A3
12 110 00	FM Ant.-Filter SFE 10,7 MS 3-A rot	FM Ant filter SFE 10.7 MS 3-A red	CF 101-102	A6
48 003 00	AM Schwingkreis BFU 455 C4N	AM resonator BFU 455 C4N	CF 104	A8
40 295 00	Filter MPX N01-673-748	MPX coil N01-673-748	L 105-106	B0
45 992 00	AM-Filter SFZ 455 HL	AM filter SFZ 455 HL	CF 103	B0
40 292 00	LW-Oszillator	LW oszillator coil	L 102	A3
40 291 00	MW-Oszillator	MW oszillator coil	L 103	A3
24 372 00	Filter 114 kHz 5307-293 B	Filter coil 114 kHz 5307-293 B	L 104	A6
46 475 00	Spule AM 2164-004A-450 kHz	AM IFT coil 2164-004A-450 kHz	IF 103	A6
48 853 00	FM DET Spule (A) N 673-097	FM DET coil (A) N 673-097	IF 101	A7
48 854 00	FM DET Spule (B) N 673-098	FM DET coil (B) N 673-098	IF 102	A7
48 855 00	Ferritantenne kpl.	LW/MW bar ant. coil	L 101	B3
34 324 00	Netzdrossel 0,6 c × 4 c × 22 ½T	Line filter 0,6 c × 4 c × 22 ½T	L 603-604	A1
37 784 00	Drossel 100 µH	Choke coil	L 406-407	A4
48 911 00	Drossel 4,7 mH	Choke coil	L 409-410	A4
48 912 00	Drossel 5,6 mH	Choke coil	L 411-412	A5
48 004 00	Löschoszillator	Tape oszillator coil	L 405	A7
46 723 00	Tiefpass-Filter	Tape trap coil	div.	A8
24 377 00	Trimmerkondensator VCT 51 F 133A 30P	Trimming capacitator VCT 51 F 133A 30P	CT 101	A3
40 233 00	Trimmerkondensator VCT 51 C 163A 10P	Trimming capacitator VCT 51 C 163A 10P	CT 102	A5
40 306 00	Tuner FE 407-G24	Tuner FE 407-G24	Tuner 101	D6
48 856 00	Sicherungswiderstand 1 kOhm ¼ W	Fuse resistor 1kOhm ¼ W	R 654-655	A1
03 419 00	Sicherungswiderstand 100 Ohm ¼ W	Fuse resistor 100 Ohm ¼ W	R 620	B4
31 129 00	Sicherungswiderstand 4,7 Ohm ½ W	Fuse resistor 4,7 Ohm ½ W	R 623-624	A2
48 857 00	Sicherungswiderstand 2,2 Ohm 1 W	Fuse resistor 2,2 Ohm 1 W	R 658-659	A2
34 335 00	Sicherungswiderstand 39 Ohm ½ W	Fuse resistor 39 Ohm ½ W	R 223, 482	A1
37 022 00	Trimmpoti 1 kOhm	Semi-fixed resistor 1 kOhm	SFR 104	A4
37 443 00	Trimmpoti 10 kOhm	Semi-fixed resistor 10 kOhm	SFR 103	A3
32 587 00	Trimmpoti 22 kOhm	Semi-fixed resistor 22 kOhm	SFR 101	A4
34 538 00	Trimmpoti 47 kOhm	Semi-fixed resistor 47 kOhm	SFR 102	A2
37 946 00	Trimmpoti 470 Ohm	Semi-fixed resistor 470 Ohm	SFR 601-602	A4
37 441 00	Trimmpoti 4,7 kOhm	Semi-fixed resistor 4.7 kOhm	SFR 404-405	A3
48 858 00	Drehwiderstand 2 × 100 kOhm	Rotary resistor 2 × 100 kOhm	VR 301-302	B1
48 859 00	Drehwiderstand 100 kOhm	Rotary resistor 100 kOhm	VR 303	B0
48 866 00	Drehwiderstand Motor 2 × 100 kOhm	Rotary resistor motor 2 × 100 kOhm	VR 601	B9
48 862 00	Tastschalter	Tact switch	div.	A2
48 863 00	Druckschalter	Push switch SPUL 19	SW 601	A7
48 913 00	Druckschalter	Push switch SPUL 12	SW 201	A7
29 651 00	Tastschalter	Tact switch	div.	A3
48 864 00	Druckschalter	Push switch PS-135M2-A22S	SW 401	A8
48 866 00	Relais	Relay	RE 1	B9
48 867 00	Display LTP 6M905 1A (Tuner)	Display LTP 6M905 1A (Tuner)	DS 101	C5
48 868 00	Lampe 15 V 50 mA	Lamp 15 V 50 mA	PL 101	A5
46 842 00	Kopfhörerbuchse	Head phone jack	J 603	A7
48 914 00	Mikrofonbuchse	Microphone jack	J 401	A9
48 872 00	Lautsprecherbuchse	Speaker jack	J 604	A9
48 870 00	Display (CD)	Display (CD)	DS 501	C4
48 865 00	Lampe 15 V 30 mA	Lamp 15 V 30 mA	PL 501	A5
32 952 00	Chinchbuchse 2polig	RCA 2 pin jack		A6
48 876 00	Anzeigeinstrument	Powermeter		C8
48 915 00	Netztrafo	Power transformator	E 9	E5
24 358 00	FM Antennenbuchse	FM Antenn jack	E 12	A6

ALIGNMENT PROCEDURE

MODEL:T90-4

1
LW

GENERAL ALIGNMENT CONDITIONS

1.Signal input must be kept as low as possible to avoid overload and clipping
(Use highest possible sensitivity of output indicator.)

2.Signal input should be kept as low as possible to avoid A.G.C action.
(Set output indicator to highest sensitvity.)

3.Marker insertion and amplitude should not distort the oscillator and amplitude should not distort the oscilloscope trace.

4. STANDARD MODULATION is 400 Hz 30%.

INSTRUMENT REQUIRED

Signal source	Output indicators
AM signal generator	*AC millivolt meter*
Radio sweep generator	*Oscilloscope*
Sweep oscilloscope	

STEP	CONNECT SIGNAL SOURCE TO-	CONNECT OUTPUT INDICATOR	SET SIGNAL OR INSERT MARKER	SET RADIO DIAL TO-	ADJUST	ADJUST FOR-
1.	Set function selector switch on the front panel to "LW" position.					
2	Sweep generator connected to a loop or short piece of wire Placed near AM antenna	Sweep oscilloscope connected to wire pin of the C 43 or C 44 and volume to maximum	See amplitude of 455 KHz	Quiet point on band near 515 KHz	IF103	Amplitude of filter
3	Signal generator connected to a loop	AC millivolt meter and oscilloscope connected across speaker	137 KHz	137KHz	LW OSC L102	maximum
4			290 KHz	290KHz		
5			170 KHz	170KHz	LW BAR ANT COIL	
6			270 KHz	270KHz	RF Trimmer CT101	
7	Repeat step 3 through 6 as necessary to obtain maximum sensitivity on station.					

ALIGNMENT PROCEDURE

MODEL T90-4

GENERAL ALIGNMENT CONDITIONS:

1. Signal input must be kept as low as possible to avoid overload and clipping. (Use highest possible sensitivity of output indicator.)
2. Signal input should be kept as low as possible to avoid A.G.C. action. (Set output indicator to highest sensitivity.)
3. Maker insertion and amplitude should not distort the oscillator and amplitude should not distort the oscilloscope trace.
4. Standard modulation is 400 Hz.

INSTRUMENTS REQUIRED

Signal source	**Output indicators**
AM signal generator	*AC millivolt meter*
Radio sweep generator	*Oscilloscope*
Sweep oscilloscope	

STEP	CONNECT SIGNAL SOURCE TO-	CONNECT OUTPUT INDICATOR-	SET SIGNAL OR INSERT MARKER	SET RADIO DIAL TO-	ADJUST	ADJUST FOR-
1	Set function selector switch on the front panel to "MW" position.					
2.	Sweep generator connected to a loop or short Piece of wire Placed near AM antenna.	Sweep oscilloscope connected to wire pin of the C 43 of C 44 and volume to mzximum	See amplitude of 455 KHz	Quiet point on band near 513 KHz.	IF103	Amplitude of filter
3.	Signal generator connected to a loop.	AC millivolt meter and oscilloscope connected across speaker	513KHz	513KHz	AM OSC L103	maximum
4			1620KHz	1620KHz		
5			600KHz	600KHz	AM BAR ANT COIL	
6			1400 KHz	1400 KHz	RF Trimmer CT 102	
7	Repeat step 3 through 6 necessary to obtain maximum sensitivity on station.					

ALIGNMENT PROCEDURF

MODEL: T90-4

3

FM

GENERAL ALIGNMENT CONDITION

1.Signal input must be kept as low as possible to avoid ocerload clipping.
(Use highest possitivity of output indicator).
2.Makers must be accurate (crystal controlled or calibrated). The 10.7 MHz marker used in each section of the FM alignment must be the same.
3.Signal input should be kept as low as possible to avoid A.G.C. ACTION.
(Set output indicator to highest sensitivity).
4.FM signal generator RF output frequency must be monitoring.
5.Standard modulation is 1 KHz (40KHz).

INSTRUMENTS REQUIRED.

Signal sources	Output indicators
FM signal generator	*AC millivolt meter*
*Radio sweep generator *	*Oscilloscope*
Sweep oscilloscope	*114 KHz signal generator*
Frequency counter	

STEP	CONNECT SIGNAL SOURCE TO-	CONNECT OUTPUT INDICATOR TO-	SET SIGNAL OR INSERT MARKER	SET RADIO DIAL TO	ADJUST	ADJUST FOR-
1.Set function selector switch on the front panel to "FM" Position.						
2	Radio sweep generator connect to FM front and tuner pin 3	Oscilloscope connected to wire pin of the C43 of C44 and volume VR to maximum	10.6 10.7 10.8MHz marker	Quiet Scale pointer on band	IF101 IF102	Straightness and symmetry of "S" curve with 10.7 MHz makerd at zero crossover

ALIGNMENT PROCEDURE

MODEL: T90-4

4

MPX

GENERAL ALIGNMENT CONDITION

1.Adjust FM signalgenerator output to 1mV (60dB) with MPX MODULATION 1 KHz
Deviation=33.75 KHz Pliot=6 KHz

INSTRUMENTS REQUIRED

Signal source	Output indicator
FM signal gererator	*Frequency counter*
Stereo signal generator	*AC millivolt meter*
	Oscilloscope

STEP	CONNECT SIGNAL SOURCE TO-	CONNECT OUTPUT INDICATOR TO-	SET SIGNAL	SET RADIO DIAL	ADJUST	ADJUST FOR-
1	Set function selector switch on the front panel to "FM STEREO" Position.					
2	FM signal generator connected to FM aerial	Frequency counter connect to MPX test point	98 MHz and modulation signal off too	98 MHz	SFR103	19.00 KHz + / -50 Hz
3	FM signal generator connected to FM aerial	Connect to Scope of 2 CH	98MKz and Modulation 40KHz pilot 6KHz 1KHz Signal	98MKz	SFR104	The L and R More better Separating

Abgleichanweisung Cassette
Alignment procedure cassette

TAPE POSITION Recorderstellung	INPUT SIGNAL Eingangsspannung	TEST TAPE Testcassette	MEASURING INSTRUMENT Meßgerät	TEST POINT Meßpunkt	ADJUSTMENT LOCATION Abgleichpunkt	MEASURING SIGNAL Meßsignal

1. Head azimuth/A/W-Kopf-Einstellung

PLAYBACK		MTT-114 N 10 kHz	V.T.V.M AC-Millivoltmeter	OUT L CH OUT R CH	AZIMUTH SCREW	NF-max.

2. Tape speed/Geschwindigkeit

PLAYBACK LOW		MTT- 111 N 3000 Hz	FREQUENCY COUNTER Frequenzzähler	OUT L CH OUT R CH	TAPE A TAPE B	SFR 405	3000 Hz
PLAYBACK HIGH		MTT-111 N 3000 Hz		OUT L CH OUT R CH	TAPE A TAPE B	SFR 406	4800 Hz

3 Oscillator coil frequency/Oszillatorfrequenz

RECORD		AC-513 IEC-II	FREQUENCY COUNTER Frequenzzähler	ERASE HEAD Löschkopf	L 405	125 kHz

4. Trap coil/HF-Sperre

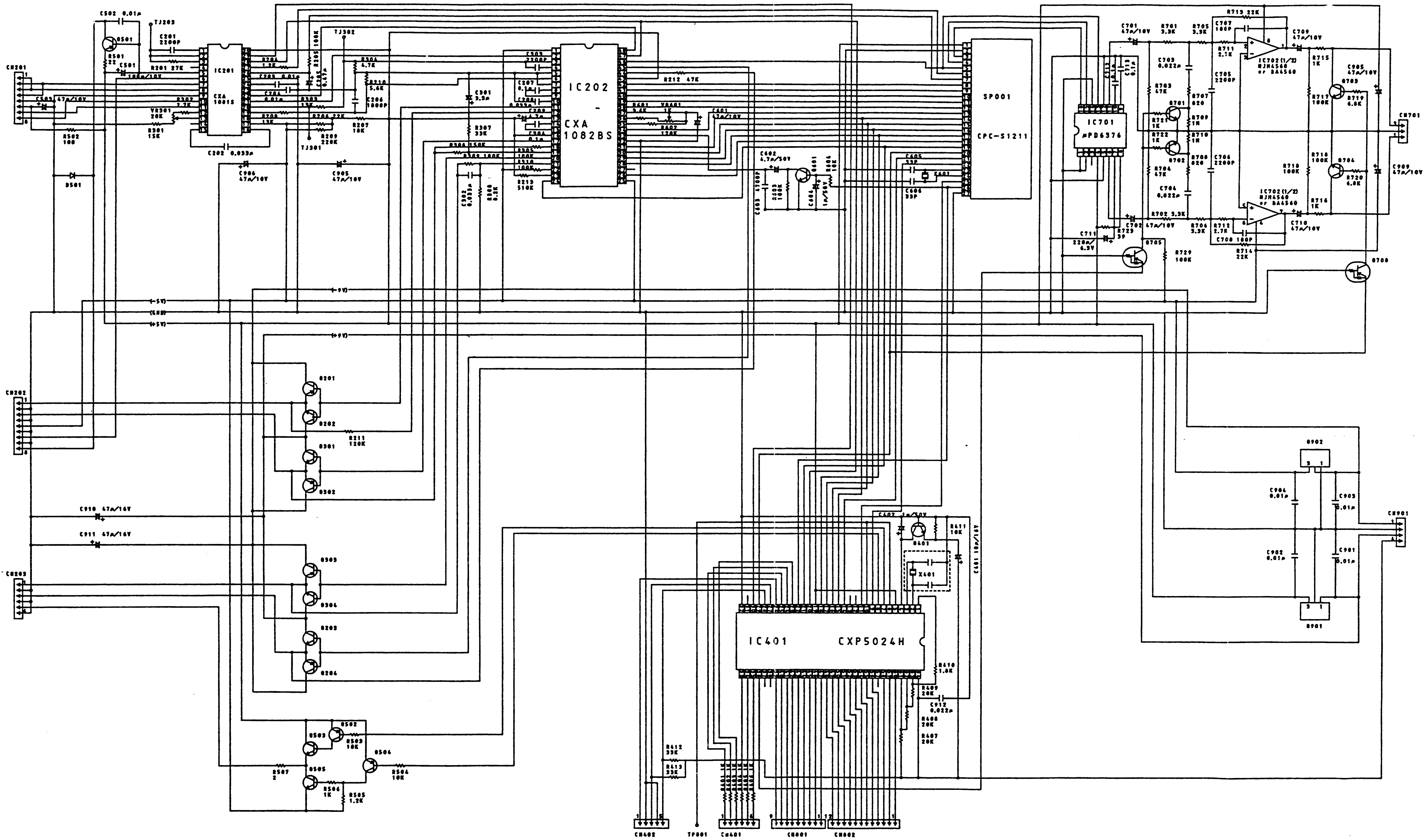
RECORD		AC-513 IEC-II	V. T. V. M AC-Millivoltmeter	R 482	L 403	MINIMUM
				R 483	L 404	

5. Head bias level/Vormagnetisierung

RECORD		AC-513 IEC-II	V. T. V. M AC-Millivoltmeter	R/P HEAD	SFR 401/SFR 402	70 mV
		AC-212 IEC-I		R/P HEAD	SFR 403	55 mV

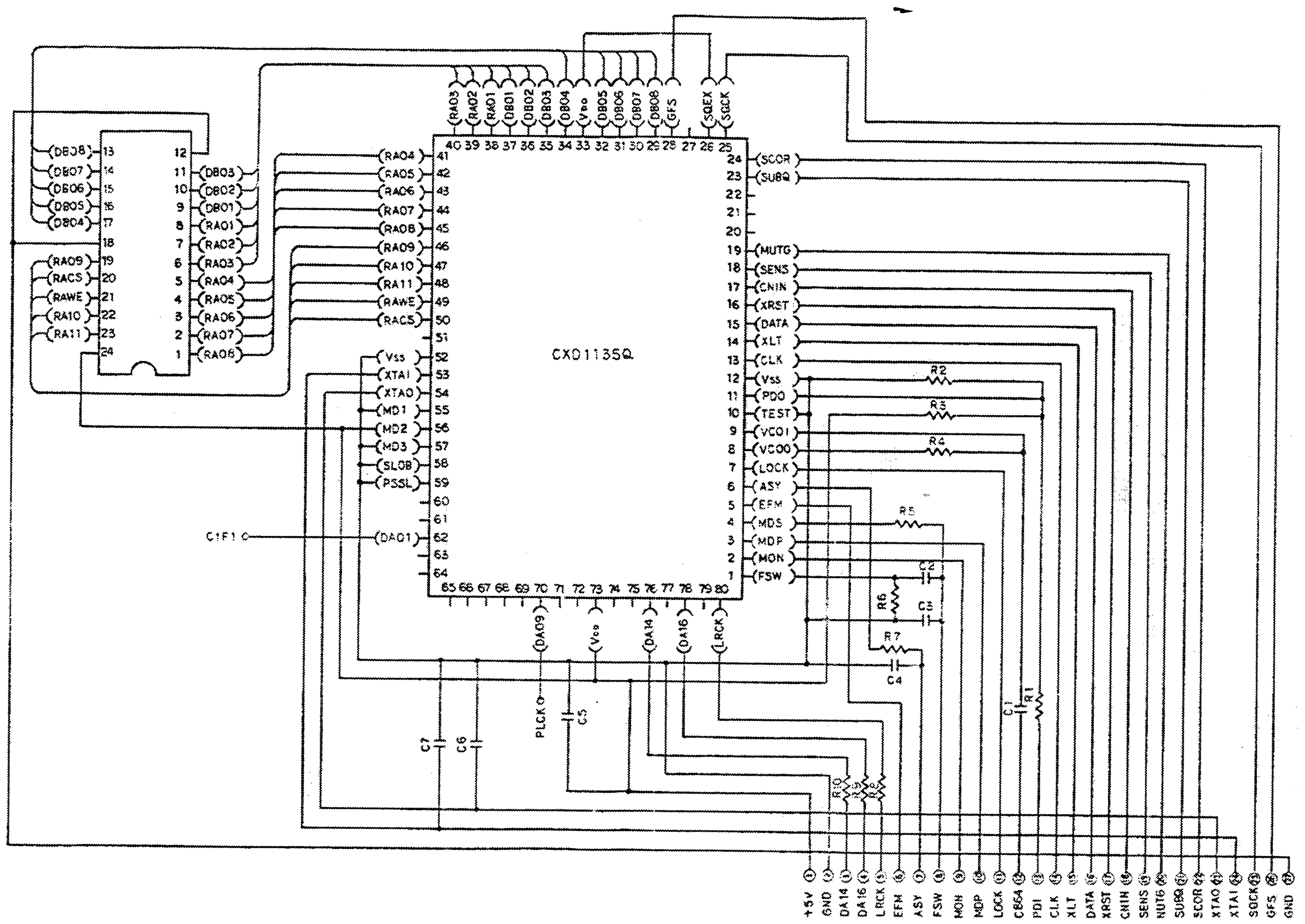
Löschspannung:	Fe:	ca. 140 Vss
	Cr:	ca. 200 Vss
Vormagnetisierung:	Fe:	ca. 30 Vss
	Cr:	ca. 40 Vss

Schaltbild CD-Player (für Id.-Nr. 49191)
Circuit diagram CD player (for Id. No. 49191)


CN201
IC201
CXA 1081S
IC202
CXA 1082BS
SP001
CPC-S1211
IC701
µPD6376
IC702(1/2) NJM4560 or BA4560
CN701
CN202
CN203
CN901
IC401 CXP5024H
Q901
Q902
CN402
TP001
CN401
CN001
CN002

PARTS NO.	PARTS NAME
R201	18k ~ 36k
R205	82k ~ 150k
R206	10k ~ 56k
R207	5.6 ~ 33k
R208	8.2k ~ 22k
R209	100k ~ ∞
R210	2.2k ~ 33k
R211	68k ~ 180k
R212	33k ~ 82k
R301	10k ~ 33k
R302	0 ~ 10k
R303	8.2k ~ 22k
R304	1.8k ~ 22k
R305	56k ~ 180k
R306	82k ~ 270k
R307	10k ~ 56k
R308	3.9k ~ 27k
R309	68k ~ 680k
R310	82k ~ 150k
R401~R406	0 ~ 2.2k
R410	1k ~ 3.3k
R503, R504	680 ~ 22k
R505	470 ~ 4.7k
R506	0 ~ 3.3k
R507	0 ~ 10
R601	2.2k ~ 4.7k
R602	82k ~ 150k
R603	47k ~ 220k
R604	680 ~ 22k
R701, R702	560 ~ 10k
R703, R704	1k ~ 82k
R705, R706	560 ~ 10k
R707, R708	390 ~ 1.5k
R709, R710	510k ~ 5.6M
R711, R712	820 ~ 4.7k
R713, R714	6.8k ~ 56k
R723	0 ~ 1k
R729	82k ~ ∞
C206	1000p~33000p
C209	3.3µ ~ 10µ
C301	1µ ~10µ
C501	47µ ~ 100µ
C503	10µ ~ 47µ
C603	2200P~8200P
C605, C606	0 ~ 47p
C703, C704	0.01µ~0.056µ
C705, C706	680P ~ 3900P
C707, C708	82p ~ 560P
C711	100µ ~ 470µ
C712, C713	0.1µ ~ 47µ
Q201	2SB1185E or EQUIVALENT
Q202	2SD1762E or EQUIVALENT
Q203	2SC1741S or EQUIVALENT
Q204	2SA854S or EQUIVALENT
Q301	2SC2060S or EQUIVALENT
Q302	2SA934S or EQUIVALENT
Q303	2SA854S or EQUIVALENT
Q304	2SC1741S or EQUIVALENT
Q401	2SC1740S or EQUIVALENT
Q501	2SA950Y or EQUIVALENT
Q502, Q504	2SA933S or EQUIVALENT
Q503, Q505	2SC1741S or EQUIVALENT
Q701~Q704	2SC1740S or EQUIVALENT
Q705, Q706	DTA143ES or EQUIVALENT
Q901	BA17805 or EQUIVALENT
Q902	MC7905 or EQUIVALENT
D501, D701	1SS133 or EQUIVALENT

Schaltbild IC-Zusatzplatine SP 001 CPC-S1211 zum CD-Player (für Id.-Nr. 49191)
Circuit diagram Sub P.C.B. SP 001 CPC-S1211 for CD player (for Id. No. 49191)

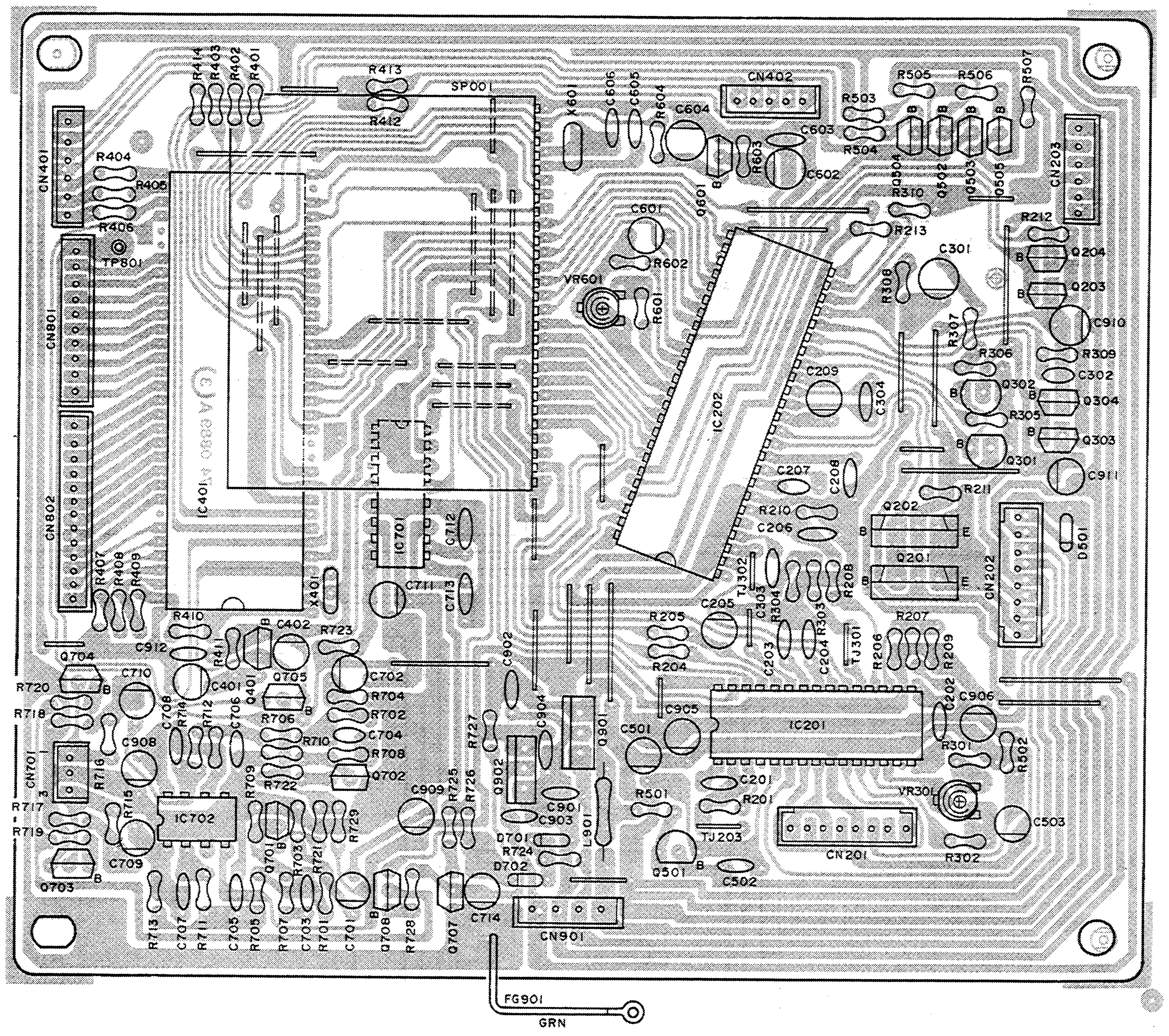

CXD1135Q
C1F1
PLCK
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
C1
C2
C3
C4
C5
C6
C7
SCOR
SUBQ
MUTG
SENS
CNIN
XRST
DATA
XLT
CLK
Vss
PDO
TEST
VCOI
VCOO
LOCK
ASY
EFM
MDS
MDP
MON
FSW
XTAI
XTAO
MD1
MD2
MD3
SLOB
PSSL
DAO1
DA09
DA14
DA16
LRCK
SQEX
SQCK
GFS
+5V
GND
DA14
DA16
LRCK
EFM
ASY
FSW
MON
MDP
LOCK
C864
PDI
CLK
XLT
DATA
XRST
CNIN
SENS
MUTG
SUBQ
SCOR
XTAO
XTAI
SQCK
GFS
GND

1	+5V
2	GND
3	D14
4	D16
5	LRCK
6	EFM
7	ASY
8	FSW
9	MON
10	MDP
11	LOCK
12	VCO
13	PDI
14	CLK
15	XLT
16	DATA
17	XRST
18	CNIN
19	SENS
20	MUTG
21	SUBQ
22	SCOR
23	XTAO
24	XTAI
25	SQCK
26	GFS
27	GND

R 1	6.8K ~ 22K	10 K	Ω
R 2	82K ~ 120K	100K	Ω
R 3	82K ~ 120K	100 K	Ω
R 4	82K ~ 120K	100 K	Ω
R 5	8.2K ~ 47 K	20 K	Ω
R 6	820K ~ 3.9M	1 M	Ω
R 7	6.8K ~ 22 K	11 K	Ω
R 8	0 ~ 3.9 K	1 K	Ω
R 9	0 ~ 3.9K	1 K	Ω
R 10	0 ~ 3.9K	1 K	Ω
C 1	680P ~ 2200P	1000P	F
C 2	0.1µ ~ 0.82µ	0.47µ	F
C 3	2700P ~ 0.033µ	6800P	F
C 4	1000P ~ 0.1 µ	0.01µ	F
C 5	0.01µ ~ 0.47 µ	0.1 µ	F
C 6	10 P ~ 100 P	15 P	F
C 7	10 P ~ 100 P	15 P	F

CD-Grundplatine
CD main P.C.B.

Bestückungsseite/Top view


SP001
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IC202
IC201
IC701
IC702
CN401
CN801
CN802
CN402
CN203
CN202
CN201
CN701
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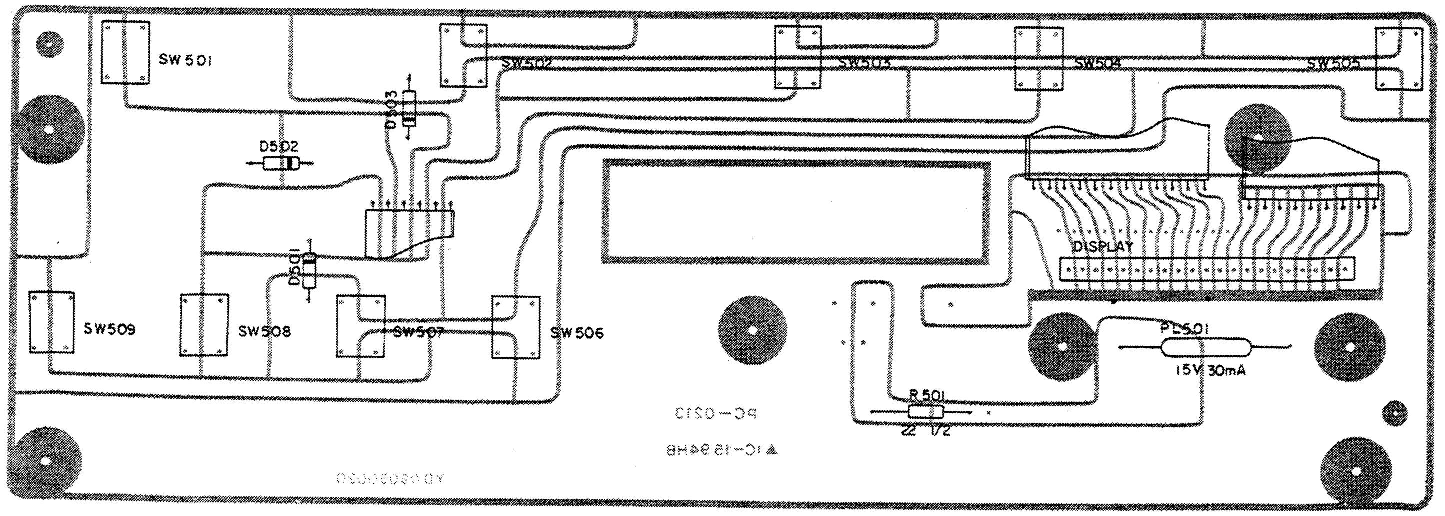
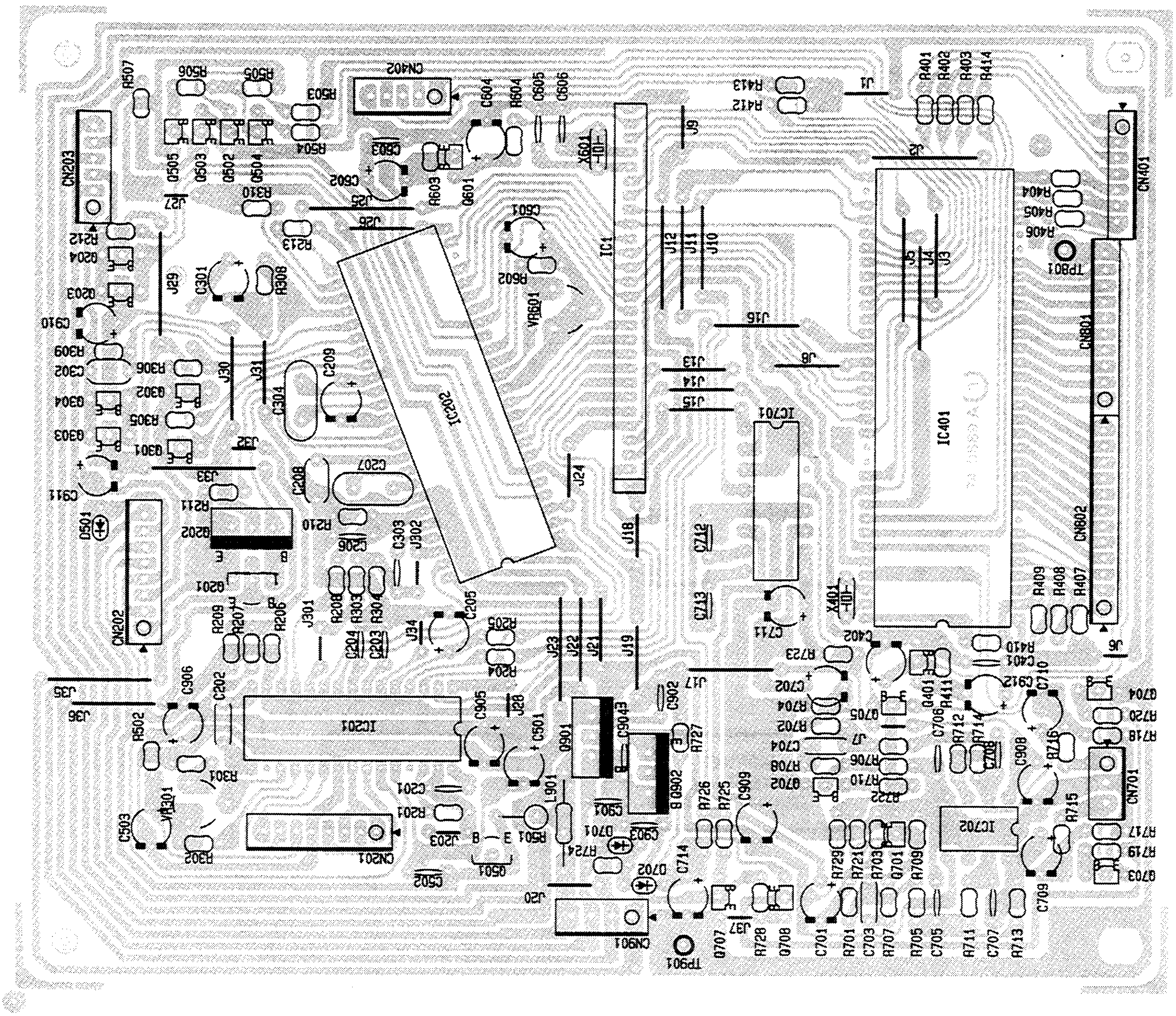
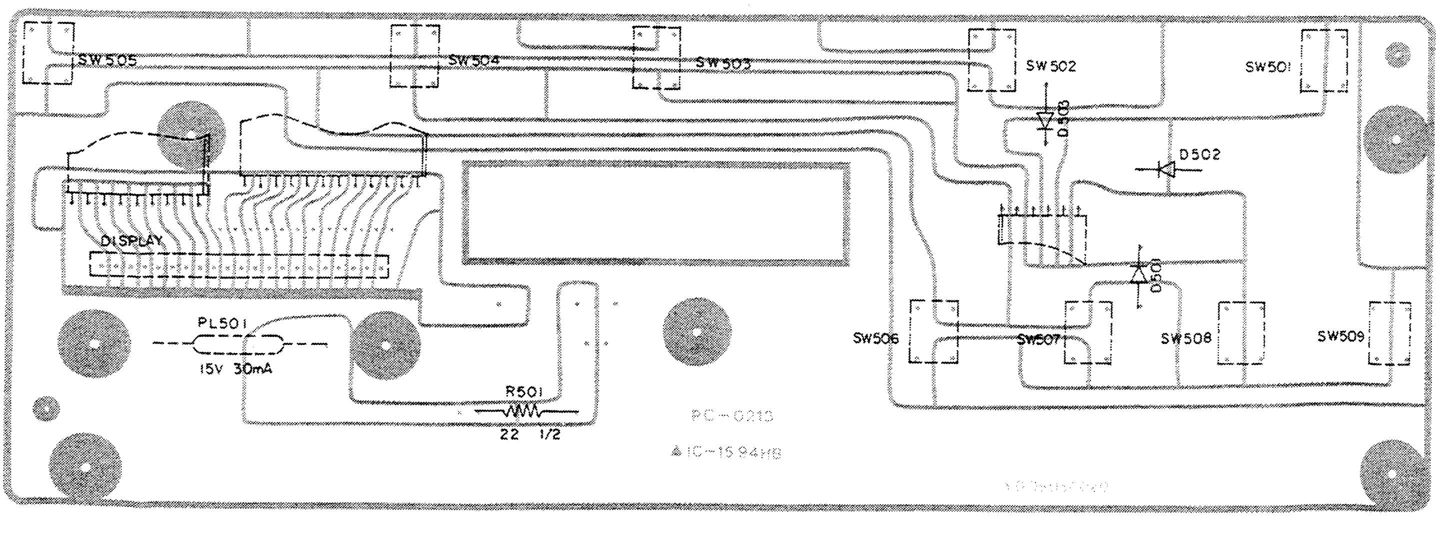
VR301
TP801
X401
FG901
GRN

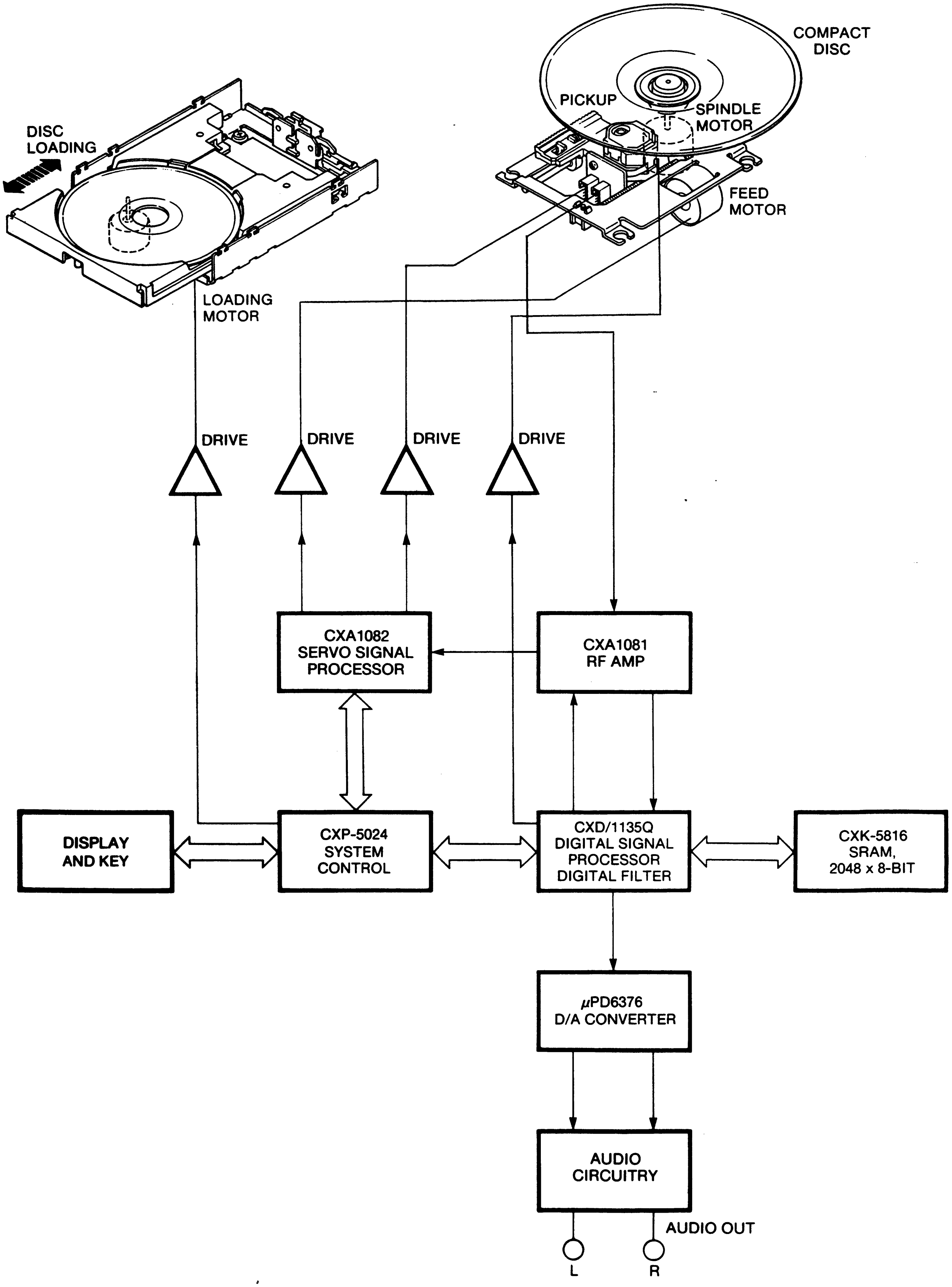

SW501
SW502
SW503
SW504
SW505
SW506
SW507
SW508
SW509
D501
D502
D503
DISPLAY
PL501
15V 30mA
R501
22 1/2
PC-0212
▲1C-1594HB

Leiterbahnseite/Bottom view


IC1
IC201
IC202
IC401
IC701
IC702
CN201
CN202
CN203
CN401
CN402
CN601
CN701
CN801
CN802
TP801
TP901

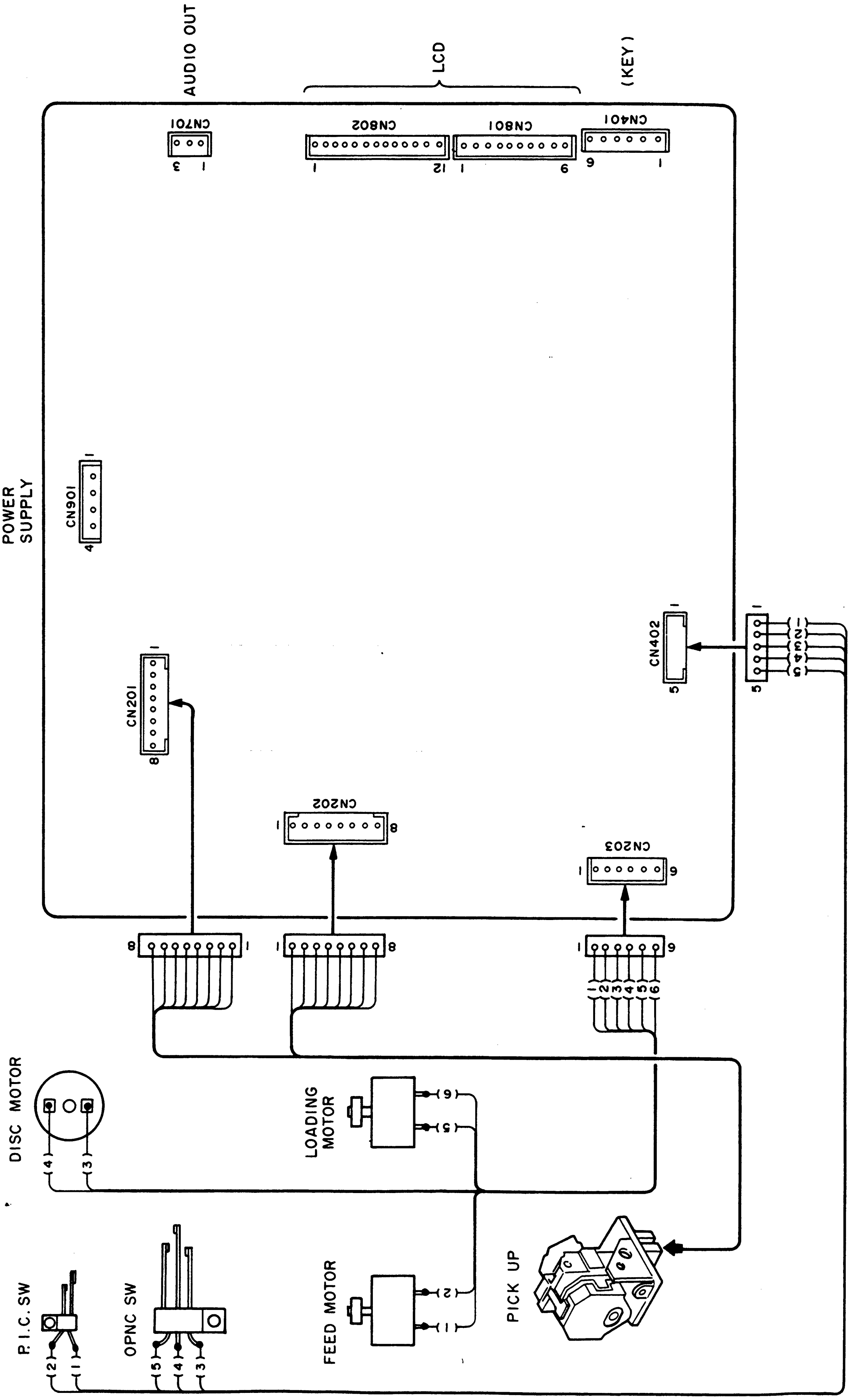

SW505
SW504
SW503
SW502
SW501
D503
D502
D501
DISPLAY
PL501
15V 30mA
R501
22 1/2
PC-0213
IC-1594HB
SW506
SW507
SW508
SW509

Blockschaltbild CD-Player
Block diagram CD player

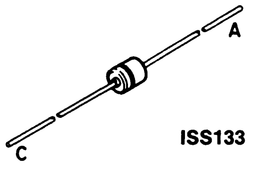


COMPACT DISC
PICKUP
SPINDLE MOTOR
DISC LOADING
FEED MOTOR
LOADING MOTOR
DRIVE
DRIVE
DRIVE
DRIVE
CXA1082 SERVO SIGNAL PROCESSOR
CXA1081 RF AMP
DISPLAY AND KEY
CXP-5024 SYSTEM CONTROL
CXD/1135Q DIGITAL SIGNAL PROCESSOR DIGITAL FILTER
CXK-5816 SRAM, 2048 x 8-BIT
μPD6376 D/A CONVERTER
AUDIO CIRCUITRY
AUDIO OUT
L
R

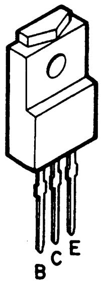
Verdrahtungsplan CD-Player
Wiring diagram CD player


AUDIO OUT
LCD
(KEY)
CN701
CN802
CN801
CN401
POWER SUPPLY
CN901
CN402
CN201
CN202
CN203
DISC MOTOR
LOADING MOTOR
PICK UP
P.I.C. SW
OPNC SW
FEED MOTOR

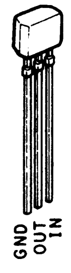
IC und Transistorblockschaltbilder für CD-Player
IC and transistor block diagrams for CD player



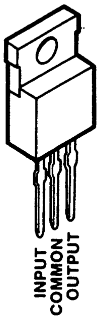
ISS133	D401, 402, 501



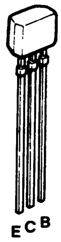
2SB1185	Q201
2SD1762	Q202



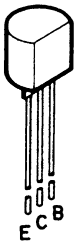
DTA143ES	Q705, 706


INPUT
COMMON
OUTPUT

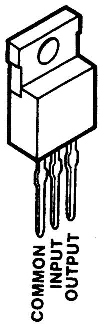
BA17805	Q901



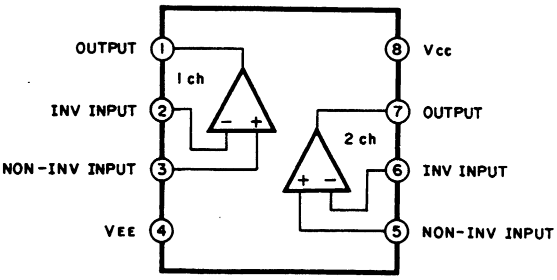
2SA854	Q204, Q303
2SC1740	Q401, 601, 701, 702 Q703, 704
2SC1741	Q203, Q304

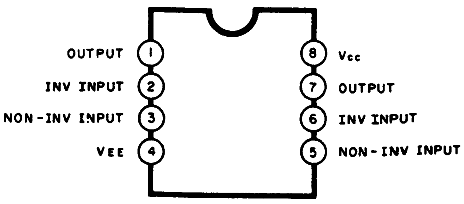


2SA1015Y	Q501
2SA950-Y	Q501
2SA934	Q302, Q201
2SC2060	Q301

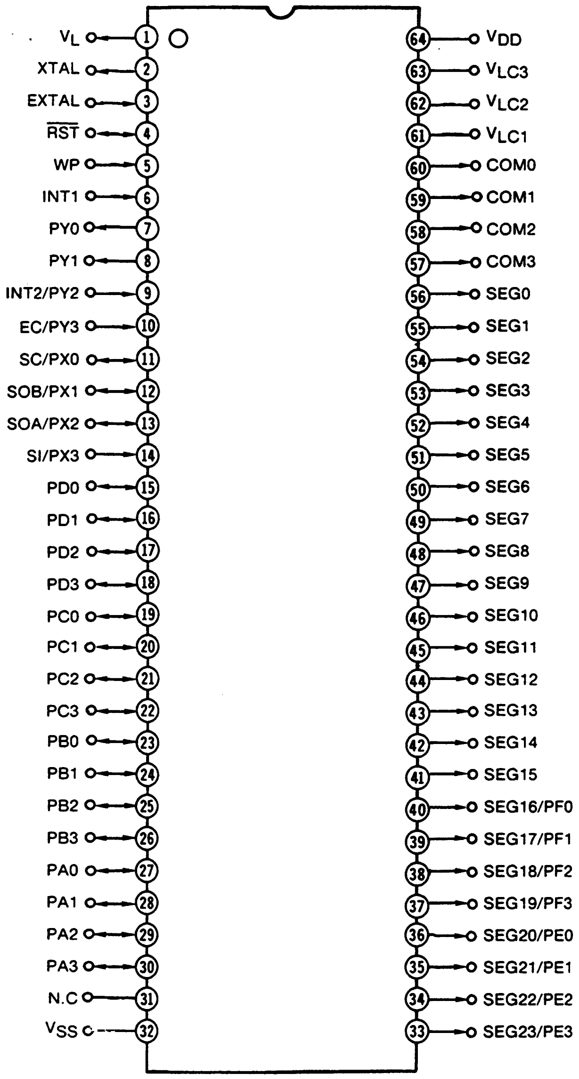

COMMON
INPUT
OUTPUT

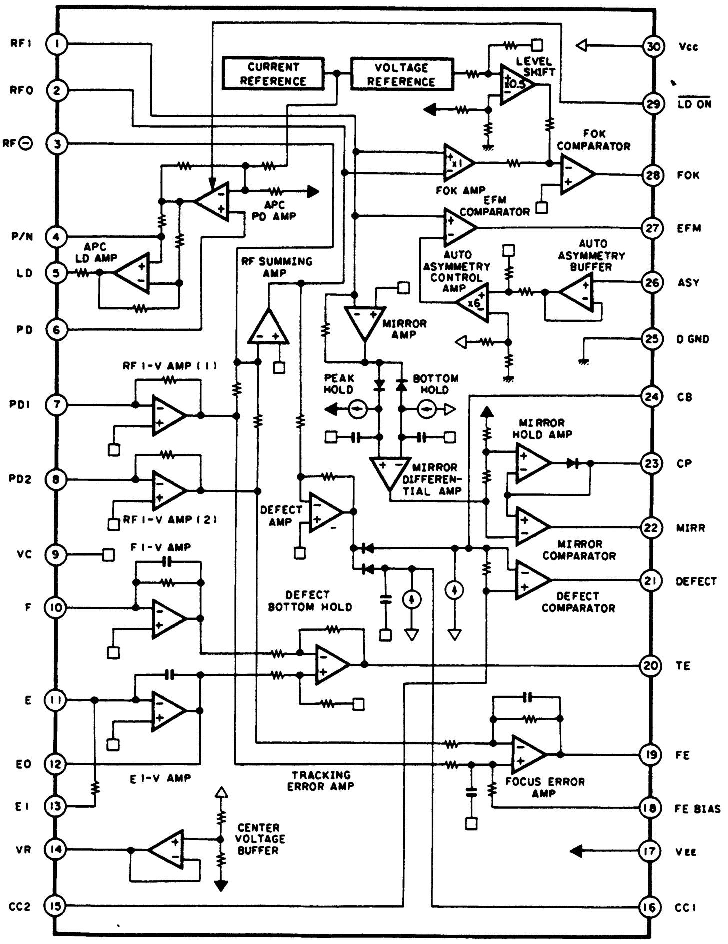
TA79005S	Q902
MC7905CT	Q902

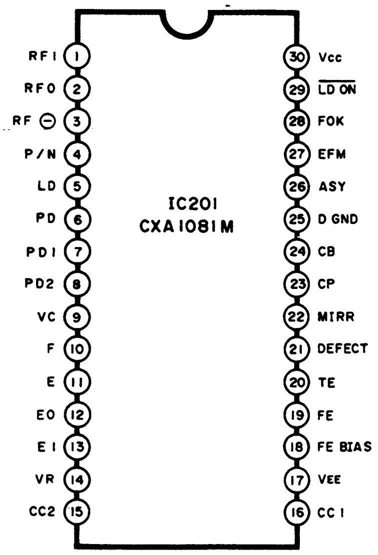

OUTPUT
1
INV INPUT
2
NON-INV INPUT
3
VEE
4
1 ch
−
+
2 ch
+
−
8
Vcc
7
OUTPUT
6
INV INPUT
5
NON-INV INPUT


OUTPUT
1
INV INPUT
2
NON-INV INPUT
3
VEE
4
8
Vcc
7
OUTPUT
6
INV INPUT
5
NON-INV INPUT

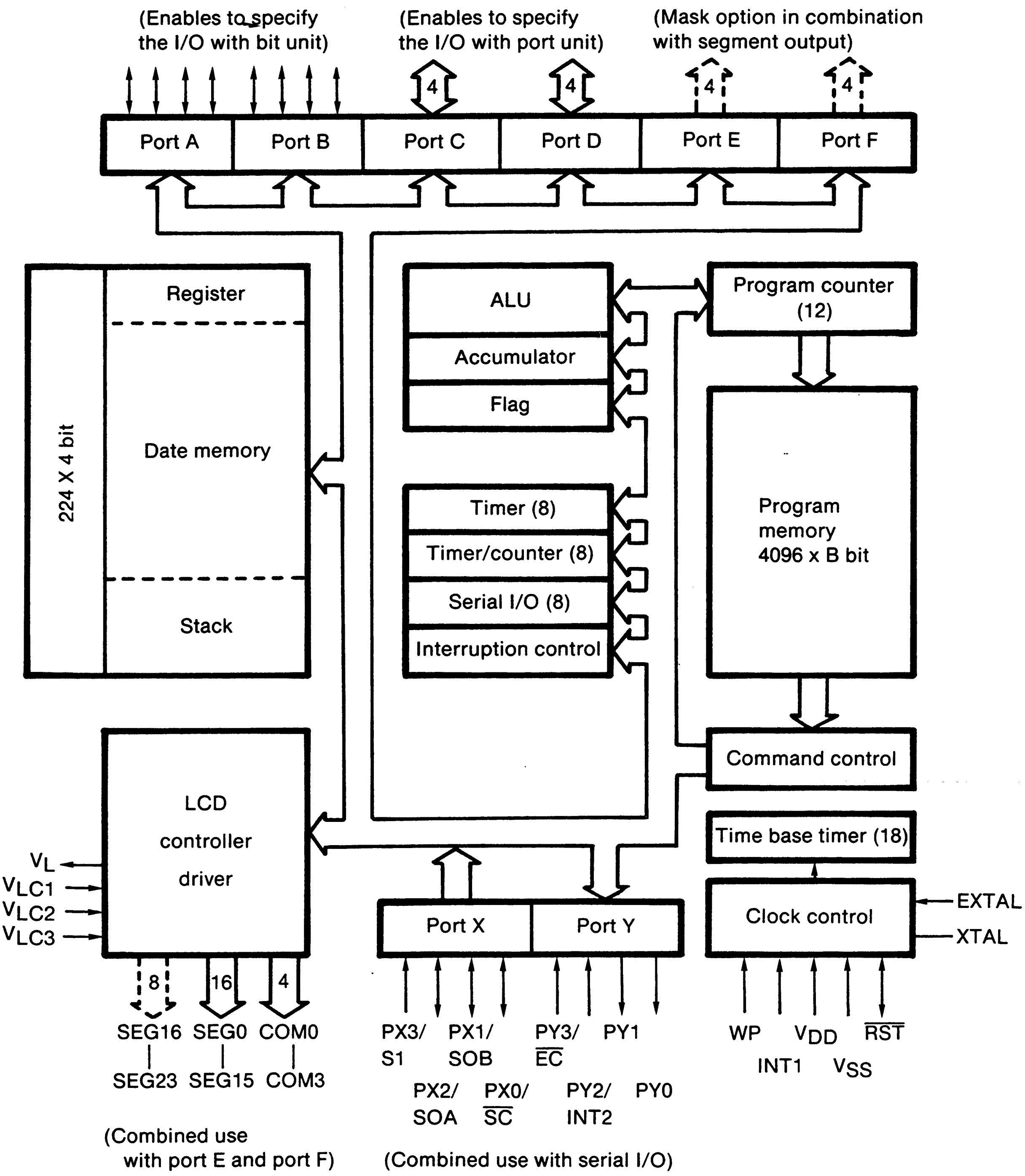
IC 201 CXA 1081 M


V_L 1
XTAL 2
EXTAL 3
RST 4
WP 5
INT1 6
PY0 7
PY1 8
INT2/PY2 9
EC/PY3 10
SC/PX0 11
SOB/PX1 12
SOA/PX2 13
SI/PX3 14
PD0 15
PD1 16
PD2 17
PD3 18
PC0 19
PC1 20
PC2 21
PC3 22
PB0 23
PB1 24
PB2 25
PB3 26
PA0 27
PA1 28
PA2 29
PA3 30
N.C 31
VSS 32
64 VDD
63 VLC3
62 VLC2
61 VLC1
60 COM0
59 COM1
58 COM2
57 COM3
56 SEG0
55 SEG1
54 SEG2
53 SEG3
52 SEG4
51 SEG5
50 SEG6
49 SEG7
48 SEG8
47 SEG9
46 SEG10
45 SEG11
44 SEG12
43 SEG13
42 SEG14
41 SEG15
40 SEG16/PF0
39 SEG17/PF1
38 SEG18/PF2
37 SEG19/PF3
36 SEG20/PE0
35 SEG21/PE1
34 SEG22/PE2
33 SEG23/PE3


RFI 1
RFO 2
RF⊖ 3
P/N 4
LD 5
PD 6
PD1 7
PD2 8
VC 9
F 10
E 11
EO 12
EI 13
VR 14
CC2 15
30 Vcc
29 LD ON
28 FOK
27 EFM
26 ASY
25 D GND
24 CB
23 CP
22 MIRR
21 DEFECT
20 TE
19 FE
18 FE BIAS
17 VEE
16 CCI
CURRENT REFERENCE
VOLTAGE REFERENCE
LEVEL SHIFT
x0.5
FOK COMPARATOR
x1
FOK AMP
EFM COMPARATOR
APC PD AMP
APC LD AMP
RF SUMMING AMP
AUTO ASYMMETRY CONTROL AMP
x6
AUTO ASYMMETRY BUFFER
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
RF I-V AMP (1)
RF I-V AMP (2)
MIRROR HOLD AMP
MIRROR DIFFERENTIAL AMP
DEFECT AMP
MIRROR COMPARATOR
F I-V AMP
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
E I-V AMP
TRACKING ERROR AMP
FOCUS ERROR AMP
CENTER VOLTAGE BUFFER


IC201
CXA1081M
RFI 1
RFO 2
RF ⊖ 3
P/N 4
LD 5
PD 6
PDI 7
PD2 8
VC 9
F 10
E 11
EO 12
EI 13
VR 14
CC2 15
30 Vcc
29 LD ON
28 FOK
27 EFM
26 ASY
25 D GND
24 CB
23 CP
22 MIRR
21 DEFECT
20 TE
19 FE
18 FE BIAS
17 VEE
16 CC I

IC 401 CXP 5024 H


(Enables to specify the I/O with bit unit)
(Enables to specify the I/O with port unit)
(Mask option in combination with segment output)
4
4
4
4
Port A
Port B
Port C
Port D
Port E
Port F
224 X 4 bit
Register
Date memory
Stack
ALU
Accumulator
Flag
Timer (8)
Timer/counter (8)
Serial I/O (8)
Interruption control
Program counter (12)
Program memory 4096 x B bit
Command control
Time base timer (18)
Clock control
EXTAL
XTAL
LCD controller driver
V_L
V_{LC1}
V_{LC2}
V_{LC3}
8
16
4
SEG16 | SEG23
SEG0 | SEG15
COM0 | COM3
(Combined use with port E and port F)
Port X
Port Y
PX3/ S1
PX1/ SOB
PY3/ $\overline{EC}$
PY1
PX2/ SOA
PX0/ $\overline{SC}$
PY2/ INT2
PY0
(Combined use with serial I/O)
WP
V_{DD}
$\overline{RST}$
INT1
V_{SS}

VOLTAGE

Pin No. DC	E	C	B
Q201	0.0	-9.0	-0.6
Q202	0.0	9.0	-0.6
Q203	0.0	9.0	-0.6
Q204	0.0	-9.0	-0.6
Q301	0.0	9.0	0.6
Q302	0.0	-9.0	0.6
Q303	0.0	-9.0	0.6
Q304	0.0	9.0	0.6
Q401	0.0	5.3	0.0
Q501	5.0	0.8	4.7
Q502	5.0	-0.5	5.0
Q503	0.0	5.0	-0.6
Q504	5.0	-5.0	5.0
Q505	-5.0	0.0	-5.0
Q601	0.0	0.0	0.0
Q701	0.0	0.0	-4.9
Q702	0.0	0.0	-4.9
Q703	0.0	0.0	-0.6
Q704	0.0	0.0	-0.6

Pin No. DC	IN	GND	OUT
Q705	0.0	0.0	-4.9
Q708	4.8	0.0	-0.6
Q901	9.0	0.0	5.0
Q902	-9.0	0.0	-5.0

IC201

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DC	0.0	0.0	0.0	0.0	4.6	-5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.1
Pin No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
DC	1.2	-5.0	0.3	0.3	0.0	-4.2	0.0	-3.4	0.0	0.0	2.5	2.4	0.1	5.0	5.0

IC202

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DC	-5.0	-4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	0.0	0.5	0.0	0.0
Pin No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
DC	5.0	0.6	0.0	0.0	0.6	0.0	-4.9	-4.0	0.1	-5.0	0.1	5.0	5.0	0.0	5.0
Pin No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
DC	5.0	0.0	2.8	2.8	2.3	2.3	3.5	2.2	0.0	0.0	0.0	0.0	5.0	0.0	-0.6
Pin No.	46	47	48												
DC	2.5	0.1	0.0												

IC401

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DC	0.0	2.2	2.2	5.3	5.0	0.6	5.0	5.0	0.0	0.6	5.0	0.0	0.0	0.0	5.0
Pin No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
DC	5.0	0.0	5.0	5.0	0.1	0.1	0.0	5.0	5.0	5.0	5.0	5.0	0.0	4.8	5.0
Pin No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
DC	0.0	0.0	5.0	5.0	5.0	0.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Pin No.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
DC	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Pin No.	61	62	63	64											
DC	3.4	1.8	0.2	5.0											

IC701

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DC	0.0	0.0	0.0	5.0	0.0	1.5	4.8	4.8	2.1	2.1	1.5	0.0	2.5	0.0	0.0
Pin No.	16														
DC	2.4														

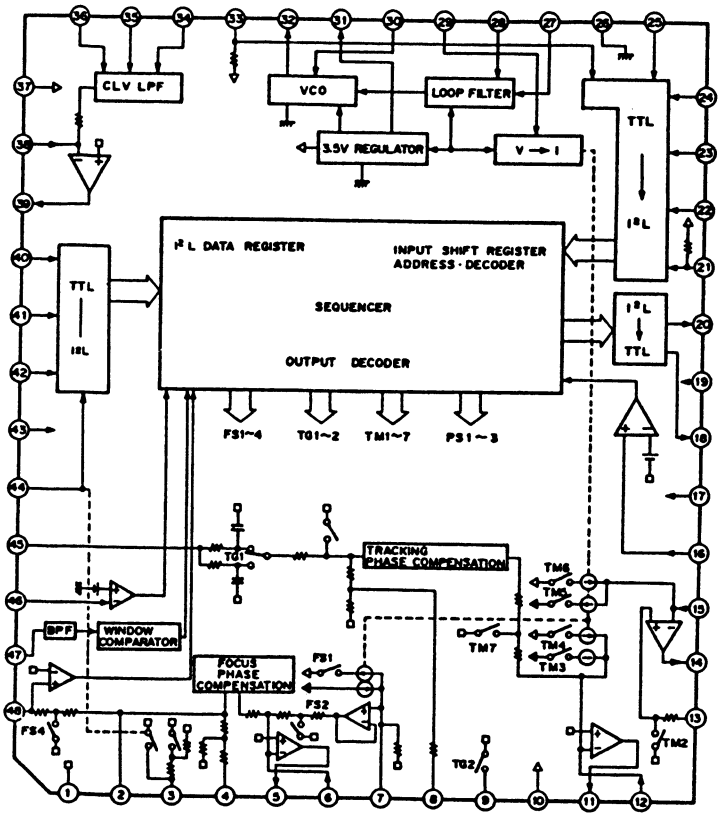
IC702

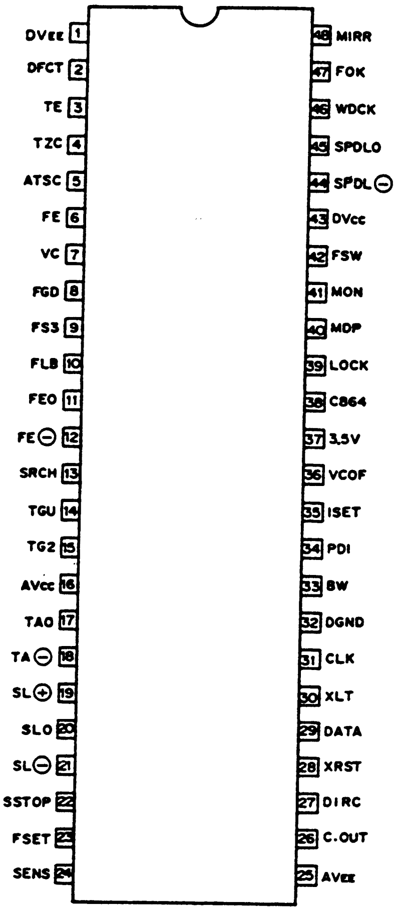
Pin No.	1	2	3	4	5	6	7	8
DC	0.0	0.0	0.0	-5.0	0.0	0.0	0.0	5.0

SP001

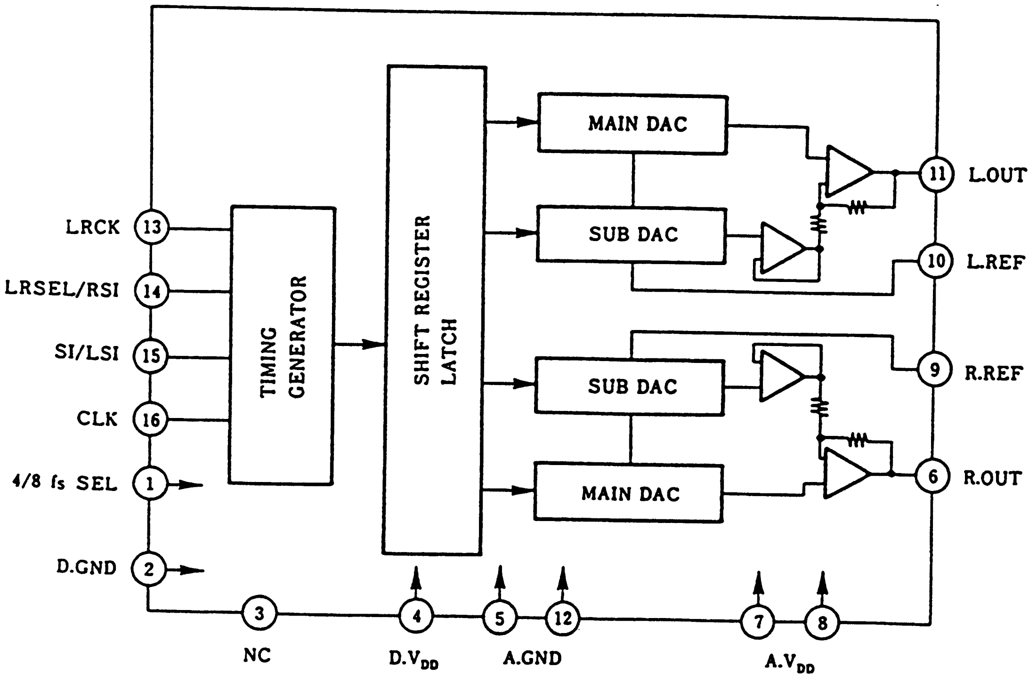
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DC	5.0	0.0	2.4	0.0	2.5	2.5	2.5	0.0	0.0	0.0	0.0	2.2	2.8	5.0	0.0
Pin No.	16	17	18	19	20	21	22	23	24	25	26	27			
DC	0.0	5.0	5.0	0.1	4.8	0.0	0.0	2.4	2.4	5.0	0.0	0.0			

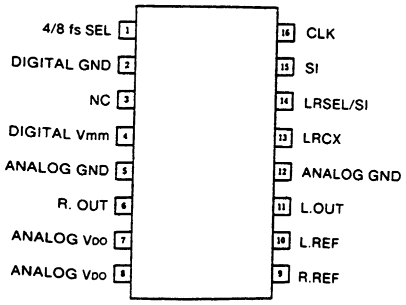
IC 202 CXA 1082


CLV LPF
VCO
LOOP FILTER
3.5V REGULATOR
V → I
TTL
I²L
I²L DATA REGISTER
INPUT SHIFT REGISTER ADDRESS · DECODER
SEQUENCER
OUTPUT DECODER
TTL
I²L
I²L
TTL
FS1~4
TG1~2
TM1~7
PS1~3
TG1
TRACKING PHASE COMPENSATION
TM6
TM5
TM7
TM4
TM3
BPF
WINDOW COMPARATOR
FOCUS PHASE COMPENSATION
FS1
FS2
FS4
TG2
TM2

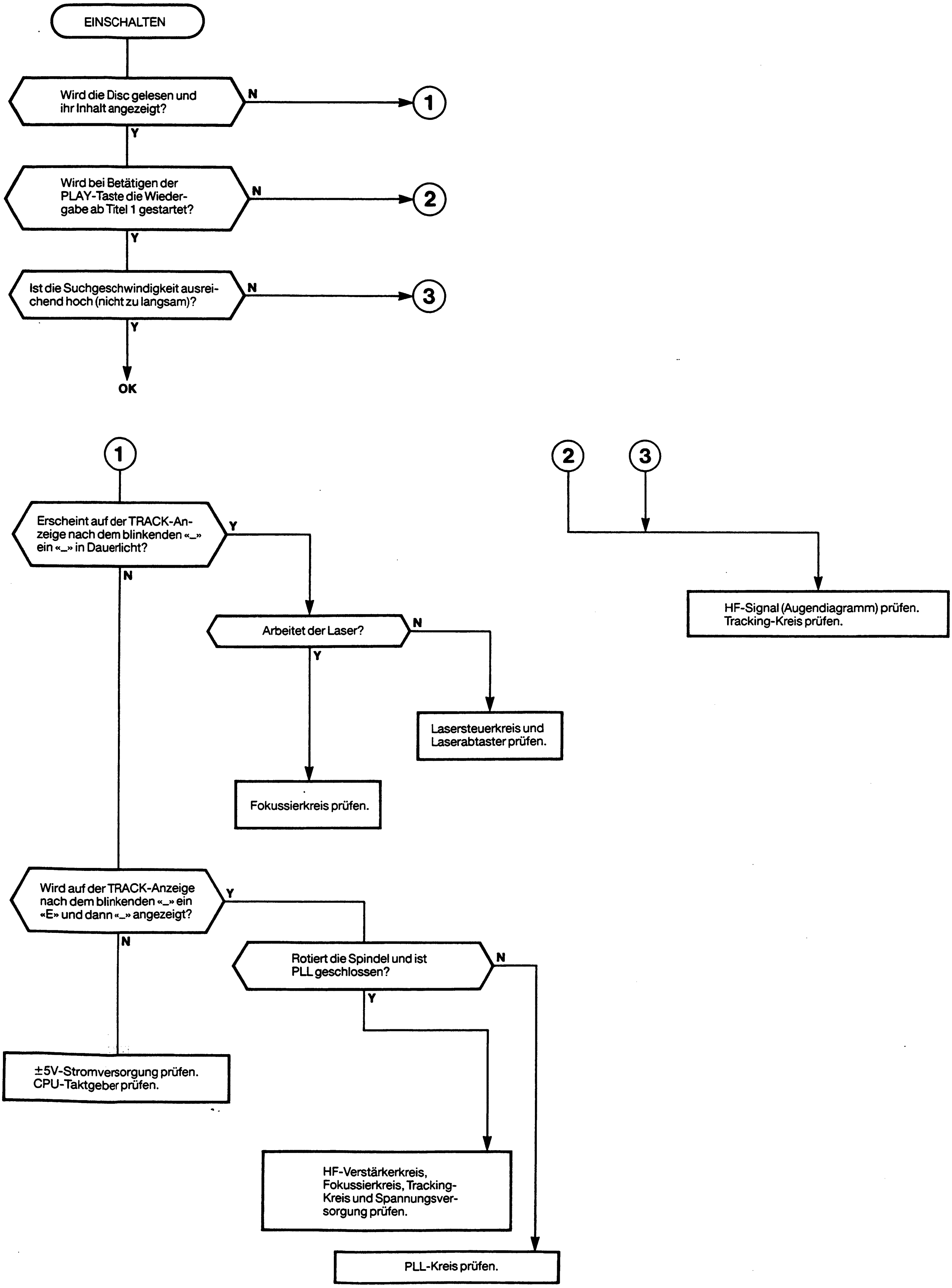

DVEE 1
DFCT 2
TE 3
TZC 4
ATSC 5
FE 6
VC 7
FGD 8
FS3 9
FLB 10
FEO 11
FE⊖ 12
SRCH 13
TGU 14
TG2 15
AVcc 16
TAO 17
TA⊖ 18
SL⊕ 19
SLO 20
SL⊖ 21
SSTOP 22
FSET 23
SENS 24
48 MIRR
47 FOK
46 WDCK
45 SPDLO
44 SPDL⊖
43 DVcc
42 FSW
41 MON
40 MDP
39 LOCK
38 C864
37 3.5V
36 VCOF
35 ISET
34 PDI
33 BW
32 DGND
31 CLK
30 XLT
29 DATA
28 XRST
27 DIRC
26 C.OUT
25 AVEE

IC 701 μPD 6376


LRCK 13
LRSEL/RSI 14
SI/LSI 15
CLK 16
4/8 fs SEL 1
D.GND 2
TIMING GENERATOR
SHIFT REGISTER LATCH
MAIN DAC
SUB DAC
SUB DAC
MAIN DAC
11 L.OUT
10 L.REF
9 R.REF
6 R.OUT
3 NC
4 D.VDD
5 12 A.GND
7 8 A.VDD


4/8 fs SEL 1
DIGITAL GND 2
NC 3
DIGITAL Vmm 4
ANALOG GND 5
R. OUT 6
ANALOG VDD 7
ANALOG VDD 8
16 CLK
15 SI
14 LRSEL/SI
13 LRCX
12 ANALOG GND
11 L.OUT
10 L.REF
9 R.REF

Fehlersuchdiagramm CD-Player


EINSCHALTEN
Wird die Disc gelesen und ihr Inhalt angezeigt?
N
1
Y
Wird bei Betätigen der PLAY-Taste die Wiedergabe ab Titel 1 gestartet?
N
2
Y
Ist die Suchgeschwindigkeit ausreichend hoch (nicht zu langsam)?
N
3
Y
OK
1
Erscheint auf der TRACK-Anzeige nach dem blinkenden «_» ein «_» in Dauerlicht?
Y
N
Arbeitet der Laser?
N
Y
Lasersteuerkreis und Laserabtaster prüfen.
Fokussierkreis prüfen.
Wird auf der TRACK-Anzeige nach dem blinkenden «_» ein «E» und dann «_» angezeigt?
Y
N
Rotiert die Spindel und ist PLL geschlossen?
N
Y
±5V-Stromversorgung prüfen. CPU-Taktgeber prüfen.
HF-Verstärkerkreis, Fokussierkreis, Tracking-Kreis und Spannungsversorgung prüfen.
PLL-Kreis prüfen.
2
3
HF-Signal (Augendiagramm) prüfen. Tracking-Kreis prüfen.

Abgleichanweisung CD-Spieler

Benötigte Meßgeräte: Frequenzzähler
Test-CD
Oszilloskop

VCO-Frequenzabgleich

Dieser Abgleich kann ohne CD-Platte durchgeführt werden.

1. Frequenzzähler an Testpunkt VCO und Masse anschließen.
2. Pin 7 der IC-Zusatzplatine mit Masse verbinden.
3. Gerät einschalten.
4. Mit Poti VR 601 Frequenz auf 4,3218 ±0,01 MHz abgleichen.
5. Kurzschlußbrücke an Pin 7 der IC-Zusatzplatine wieder entfernen.

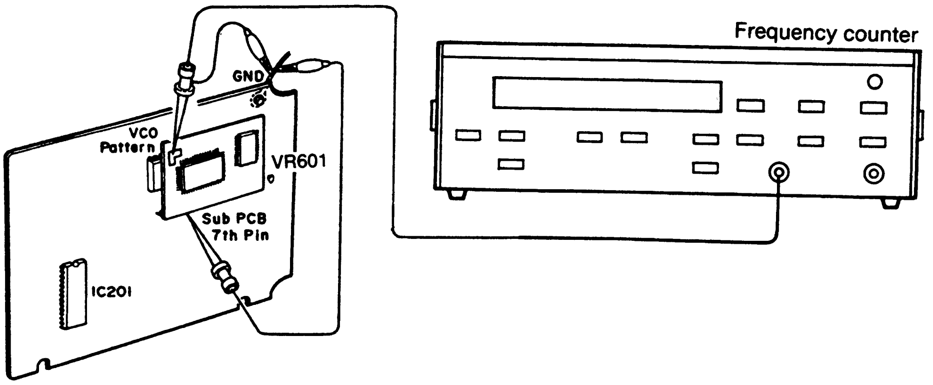
Alignment procedure CD player

Instruments required: Frequency counter
Test disc
Oscilloscope

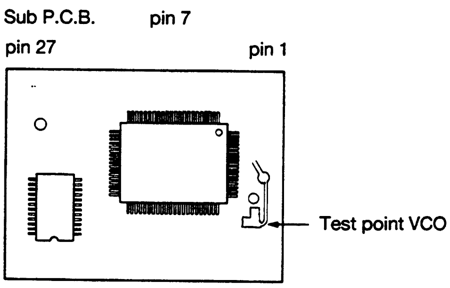
VCO frequency adjustment

This VCO frequency adjustment does not need a CD disc.

1. Connect the frequency counter to test point (VCO) and to ground.
2. Connect the Sub P.C.B. 7th pin to GND wire.
3. Set the unit power on.
4. Adjust VR 601 to 4.3218 ±0.01 MHz.
5. Resolder (Pin 7 in Sub P.C.B. and GND).


GND
VCO
Pattern
VR601
Sub PCB
7th Pin
IC201
Frequency counter

VCO ADJUSTMENT

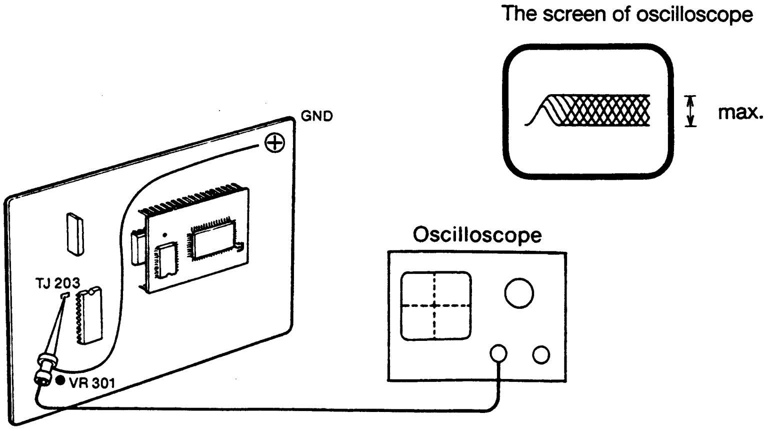

Sub P.C.B.
pin 7
pin 27
pin 1
Test point VCO

EF-Balance-Abgleich

1. CD-Platte einlegen und »PLAY«-Taste drücken.
2. Oszilloskop an Testpunkt TJ 203 und Masse anschließen.
3. HF-Signal mit VR 301 auf Maximum abgleichen.

EF-Balance adjustment

1. Load a disc and play back.
2. Connect an oscilloscope to the test points TJ 203 and ground.
3. Adjust VR 301 so that the HF-Signal becomes maximum.


The screen of oscilloscope
max.
GND
TJ 203
VR 301
Oscilloscope

Ersatzteilliste CD-Player
Spare parts list CD player

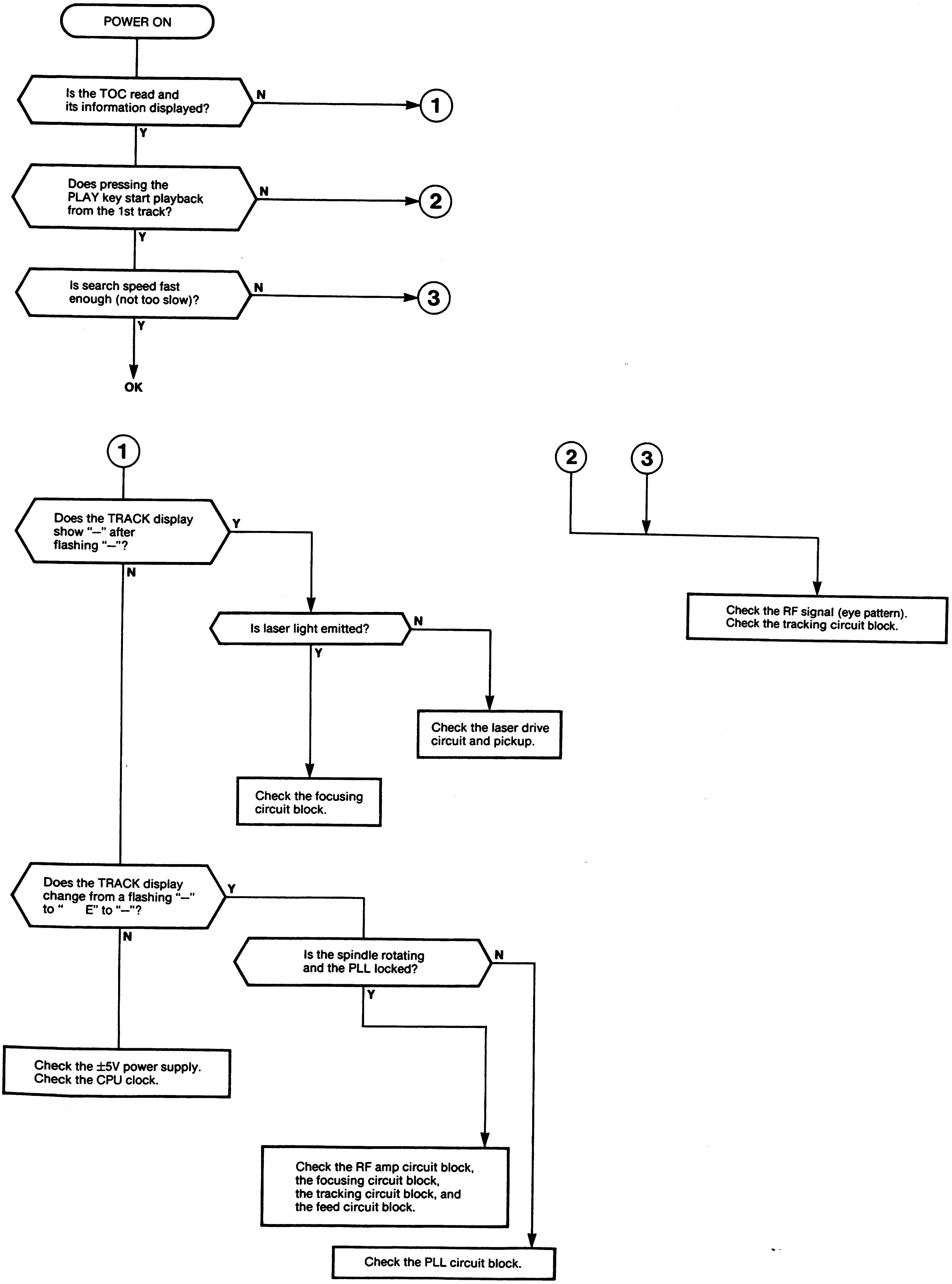
mechanische Teile/mechanism

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe/ Price key
48 942 00	CD-Mechanik kpl. R 741048 (für Id.-Nr. 49191)	CD mechanism (for no. 49191)	A 16	G9
48 953 00	CD-Mechanik kpl. R 741059 (für Id.-Nr. 49447)	CD mechanism (for no. 49447)	A 16	G9
46 755 00	Schlitten CD-Platte	Tray	CD 1	B4
46 756 00	Auflagebügel CD-Platte	Lifter	CD 2	B0
46 869 00	Feder Auflagebügel	Lifter spring	CD 4	A2
46 757 00	Zentrierscheibe oben	Disc cramper	CD 8	A3
46 758 00	Kurvenzahnrad Lademechanik	Drive gear	CD 11	A9
46 759 00	Schaltkontakt	Leaf switch	CD 17	A9
44 132 00	Mikroschalter	Leaf switch	CD 18	A4
46 870 00	Gewindestange Laserschlitten	Lead screw	CD 22	B1
44 121 00	Pulley Gewindestange	Feed pulley	CD 23	A2
48 943 00	Halterung Gewindestange	Bush	CD 24	A2
46 871 00	Führung Gewindestange (für Id.-Nr. 49191)	S-rack (for no. 49191)	CD 25	A3
48 501 00	Laserabtaster kpl. (für Id-Nr. 49191)	Laser pick-up (for no. 49191)	CD 26	F1
48 951 00	Führung Gewindestange (für Id.-Nr. 49447)	S-rack (for no. 49447)	CD 25	A3
48 952 00	Laserabtaster kpl. (für Id-Nr. 49447)	Laser pick-up (for no. 49447)	CD 26	F7
44 116 00	Riemen Lasermotor	Belt	CD 29	A3
44 124 00	Gleitstange	Guide shaft	CD 30	A4
46 761 00	Motor Antrieb CD-Platte	Disc motor	CD 34	C0
46 762 00	Antriebsteller	Disc table	CD 37	B0
46 872 00	Feder Antriebsteller	Locater spring	CD 38	A1
46 763 00	Zentrierscheibe unten	Locater	CD 39	A3
46 873 00	Kappe Zentrierscheibe	Locater cap	CD 40	A3
44 115 00	Motorpulley Laser	Driving pulley	CD 41	A1
44 117 00	Motor Laser	Feed motor	CD 42	B6
46 874 00	Gleithebel Kippmechanik	Cam	CD 48	A7
46 875 00	Druckhebel Kippmechanik	Slider	CD 49	A5
46 764 00	Zwischenrad Lademechanik	Idle gear C	CD 52	A3
46 765 00	Riemen Lademotor	Belt	CD 53	A4
40 752 00	Motor Schlitten	Loading motor	CD 54	B9
46 766 00	Pulley Lademotor	Motor pulley	CD 55	A2

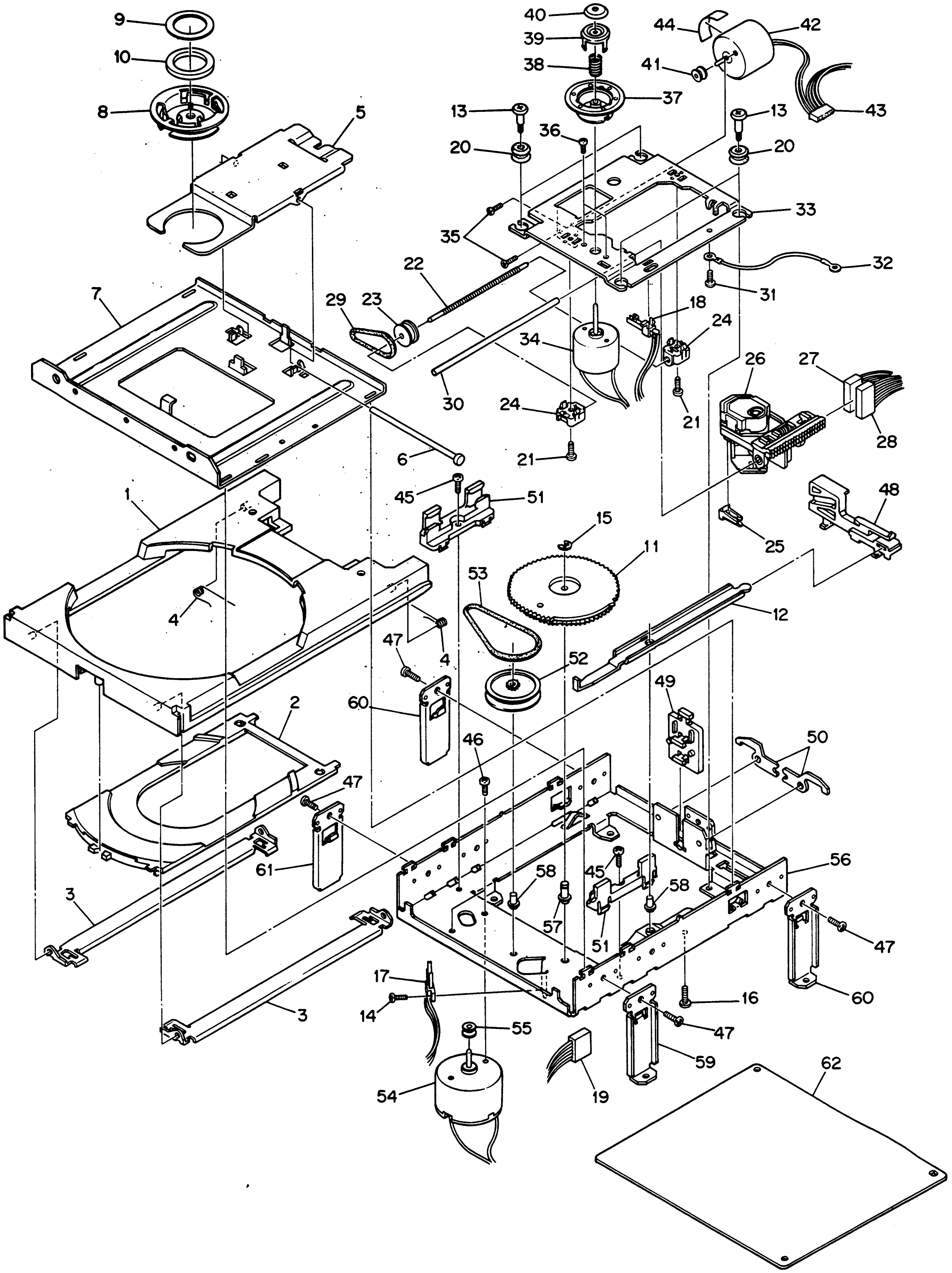
elektrische Teile/electrical parts

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe/ Price key
48 945 00	Grundplatine CD (für Id.-Nr. 49191)	CD P.C.B. (for no. 49191)	CD 62	G7
48 957 00	Grundplatine CD (für Id.-Nr. 49447)	CD P.C.B (for no. 49447)	CD 62	G7
46 747 00	IC CXA 1081 S	IC CXA 1081 S	IC 201	B4
48 791 00	IC CXA 1082 BS	IC CXA 1082 BS	IC 202	D0
48 944 00	IC CXP 5024H-094 S	IC CXP 5024H-094 S	IC 401	D4
48 793 00	IC UPD 6376 CX	IC UPD 6376 CX	IC 701	C6
40 765 00	IC BA 4560	IC BA 4560	IC 702	A6
40 766 00	Transistor 2 SB 1185 Y 2 E (für Id. Nr 49191)	Transistor 2 SB 1185 Y 2 E (for no. 49191)	Q 201	A8
24 796 00	Transistor 2 SA 934 TPQ (für Id.-Nr. 49447)	Transistor 2 SA 934 TPQ (for no. 49447)	Q 201	A6
40 767 00	Transistor 2 SD 1762 Y 2 E	Transistor 2 SD 1762 Y 2 E	Q 202	A7
29 590 00	Transistor 2 SC 1741 STPQ	Transistor 2 SC 1741 STPQ	div.	A4
29 583 00	Transistor 2 SA 854 STPQ	Transistor 2 SA 854 STPQ	Q 204	A5
29 582 00	Transistor 2 SC 2060 TPQ	Transistor 2 SC 2060 TPQ	Q 301	A6
24 796 00	Transistor 2 SA 934 TPQ	Transistor 2 SA 934 TPQ	Q 302	A6
34 692 00	Transistor 2 SC 1740 SWTPQ	Transistor 2 SC 1740 SWTPQ	div.	A2
46 752 00	Transistor 2 SA 950-Y (für Id.-Nr. 49191)	Transistor 2 SA 950-Y (for no. 49191)	Q 501	A5
12 959 00	Transistor 2 SA 1015-Y (für Id.-Nr. 49447)	Transistor 2 SA 1015-Y (for no. 49447)	Q 501	A6
34 601 00	Transistor 2 SA 933 STPR	Transistor 2 SA 933 STPR	Q 502, 504	A6
48 746 00	Transistor DTA 143 ESWTP	Transistor DTA 143 ESWTP	Q 705	A3
48 747 00	Transistor BA 17 805	Transistor BA 17 805	Q 901	B1
48 794 00	Transistor MC 7905 CT (für Id.-Nr. 49191)	Transistor MC 7905 CT (for no. 49191)	Q 902	A3
48 954 00	Transistor TA 79005 S (für Id.-Nr. 49447)	Transistor TA 79005 S (for no. 49447)	Q 902	A3
48 795 00	Diode 1 SS 133T-77 (für Id.-Nr. 49191)	Diode 1 SS 133T-77 (for no. 49191)	D 501	A2
29 622 00	Drehwiderstand 20 kOhm	Trimmer resistor 20 kOhm	VR 301	A3
29 623 00	Drehwiderstand 1 kOhm	Trimmer resistor 1 kOhm	VR 601	A3
46 839 00	Keramikfilter 4,0 MHz	Ceralock 4.0 MHz	X 401	A7
48 796 00	Keramikfilter 16,93 MHz (für Id.-Nr. 49191)	Ceralock 16.93 MHz (for no. 49191)	X 601	B2
48 955 00	Keramikfilter 8,46 MHz (für Id.-Nr. 49447)	Ceralock 8.46 MHz (for no. 49447)	X 601	B1
48 797 00	IC Zusatzplatine CPC-S1211 (für Id.-Nr. 49191)	IC P.C.B. CPC-S1211 (for no. 49191)	SP 001	F6
48 956 00	IC Zusatzplatine CPC-S1214 (für Id.-Nr. 49447)	IC P.C.B. CPC-S1214 (for no. 49447)	SP 001	F5

Troubleshooting Flowchart CD player


POWER ON
Is the TOC read and its information displayed?
N
1
Y
Does pressing the PLAY key start playback from the 1st track?
N
2
Y
Is search speed fast enough (not too slow)?
N
3
Y
OK
1
Does the TRACK display show "–" after flashing "–"?
Y
N
Is laser light emitted?
N
Y
Check the laser drive circuit and pickup.
Check the focusing circuit block.
Does the TRACK display change from a flashing "–" to " E" to "–"?
Y
N
Is the spindle rotating and the PLL locked?
N
Y
Check the ±5V power supply. Check the CPU clock.
Check the RF amp circuit block, the focusing circuit block, the tracking circuit block, and the feed circuit block.
Check the PLL circuit block.
2
3
Check the RF signal (eye pattern). Check the tracking circuit block.

Explosionsdarstellung CD-Mechanik
Exploded view CD mechanism
Explo-Index: CD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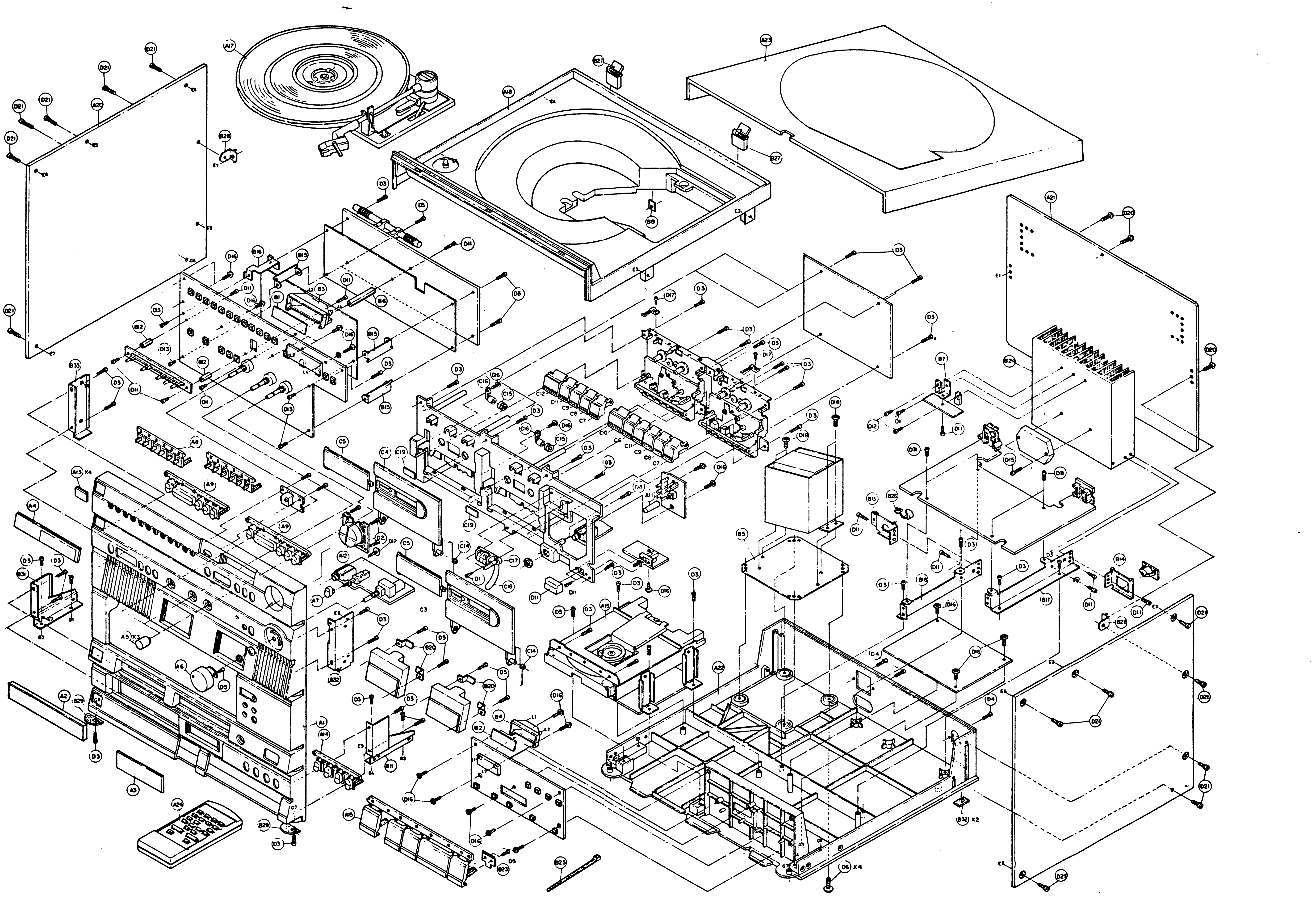
Ersatzteilliste Gehäuseteile
Spare parts list housing parts

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe/ Price key
48 882 00	Frontblende	Front panel	A 1	C9
48 883 00	Seitenteil rechts	Side panel right	A 19	C0
48 884 00	Seitenteil links	Side panel left	A 20	C0
48 885 00	Rückwand	Back board	A 21	B6
48 886 00	Gehäuseoberteil	Player board	A 22	C2
48 887 00	CD-Fach-Blende	CD door	A 2	A 6
48 888 00	Blende Display CD	CD display window	A 3	A7
48 802 00	Blende Display Tuner	Tuner display window	A 4	A8
48 803 00	Knopf dreh 14,5 mm	Function knob	A 5	A1
48 804 00	Knopf dreh Lautstärke	Main volume knob	A 6	A2
48 805 00	Knopf Loudness	Loudness button	A 7	A1
48 806 00	Tastensatz Senderspeicherung 6fach	Tuning preset button assembly	A 8	A2
48 807 00	Tastensatz 5fach	Function button assembly	A 9	A2
48 808 00	Knopf Netzschalter	Power button	A 10	A2
48 809 00	Knopf Hi-Speed	Hi-sp button	A 11	A1
48 889 00	Knopf Tuning kpl.	Tuning knob assembly	A 12	A3
48 890 00	CD Tastensatz 4fach	CD preset button assembly (A)	A 14	A2
48 891 00	CD Tastensatz 5fach-Funktion	CD preset button assembly (B)	A 15	A6
48 892 00	Abdeckhaube	Dust cover	A 23	C4
48 893 00	Fernbedienungsgeber kpl.	Remote control box assembly	A 24	D3
48 894 00	Haubenscharnier	SHS Hinge assembly	B 27	A7
48 818 00	Klaviertaste Play A (schmal)	Cassette key Play A	C 6	A2
48 819 00	Klaviertaste Pause	Cassette key Pause	C 7	A2
48 820 00	Klaviertaste Stop/Eject	Cassette key Stop/Eject	C 8	A2
48 821 00	Klaviertaste Fast Forward	Cassette key Fast Forward	C 9	A2
48 822 00	Klaviertaste Record	Cassette key Record	C 10	A2
48 823 00	Klaviertaste Rewind	Cassette key Rewind	C 11	A2
48 824 00	Klaviertaste Play B (breit)	Cassette key Play B	C 12	A2
48 815 00	Cassettenfach A	Cassette case A	C 3	A9
48 816 00	Cassettenfach B	Cassette case B	C 4	B0
48 817 00	Cassettenfachfenster	Cassette window	C 5	A6
48 825 00	Feder Cassettenfach	Cassette open spring	C 14	A1
40 790 00	Dampfrad	Damper gear	C 16	A2
40 791 00	Dampfradhalter	Damper holder	C 17	A2
48 826 00	Zählwerk	Tape counter	C 17	B3
48 827 00	Riemen Zählwerk	Counter belt	C 18	A2
48 895 00	Lautsprecherbox	Speaker box	E 3	E8

Ersatzteilliste Plattenspieler Mechanik
Spare parts list player mechanism

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe/ Price key
27 823 00	Plattenspieler kpl.	Record player assembly	A 17	E9
14 101 00	Puck	Turntable adaptor	PL 1	A3
48 641 00	Klammer Plattenteller	Spindle clip	PL 2	A2
48 642 00	Plattenteller kpl.	Turntable assembly	PL 3	C3
48 643 00	Antriebsriemen	Belt	PL 4	A8
48 644 00	Achse Plattenteller	Spindle	PL 5	A8
48 645 00	Schaltklinke	Cam follower	PL 8	A2
48 646 00	Schaltkupplung	Trip pawl	PL 9	A4
48 647 00	Hauptschalthebel	Lift platform	PL 10	A2
48 648 00	Schaltstange	Slide assembly	PL 11	A9
48 649 00	Tonarm kpl.	PU arm assembly	PL 001	D8
48 650 00	System AT 3600 LA	Cartridge assembly AT 3600 LA	PL 22	D2
48 651 00	Abtastnadel N5762	Stylus N-5762	PL 23	C9
48 652 00	Nadelschutz	Cartridge cover	PL 24	A5
48 653 00	Plattentellermatte	Turntable mat assembly	PL 27	C1
48 654 00	Schalter Geschwindigkeit	Slide switch	PL 28	A3
48 655 00	Clip Tonarmstütze	T.A. hook	PL 30	A1
48 656 00	Anschlußbuchse	Motor supply	PL 31-32	A5
48 657 00	Feder Gleithebel	Slide spring	PL 33	A2
48 658 00	Motor MMI 6T2RWPJ	Motor MMI 6T2RWPJ	PL 34	C6
48 659 00	Hebel Tonarmlift	Cue lever	PL 38	A3
48 660 00	Feder Auflage	Base spring	PL 40	A2
48 661 00	Sicherungsschraube	Transit screw	PL 41	A2
48 662 00	Sicherungsschraube	Transit screw	PL 42	A2
48 663 00	Transportsicherungsspange	Relaining clip	PL 43	A2
48 664 00	Rücksetzhebel kpl. m. Feder	Hinge assembly	PL 003	A6
48 665 00	Mikroschalter Ein/Aus	Leaf switch	PL 47	A5
48 666 00	Knopf Geschwindigkeitsumschaltung	Speed change cap	PL 49	A2

Explosionsdarstellung Gehäuse
Exploded view housing
Explo-Index: A–D


A17
D21
A20
B28
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A23
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B19
D3
D5
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D16
B16
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A13 X4
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B32 X2
D6 X4
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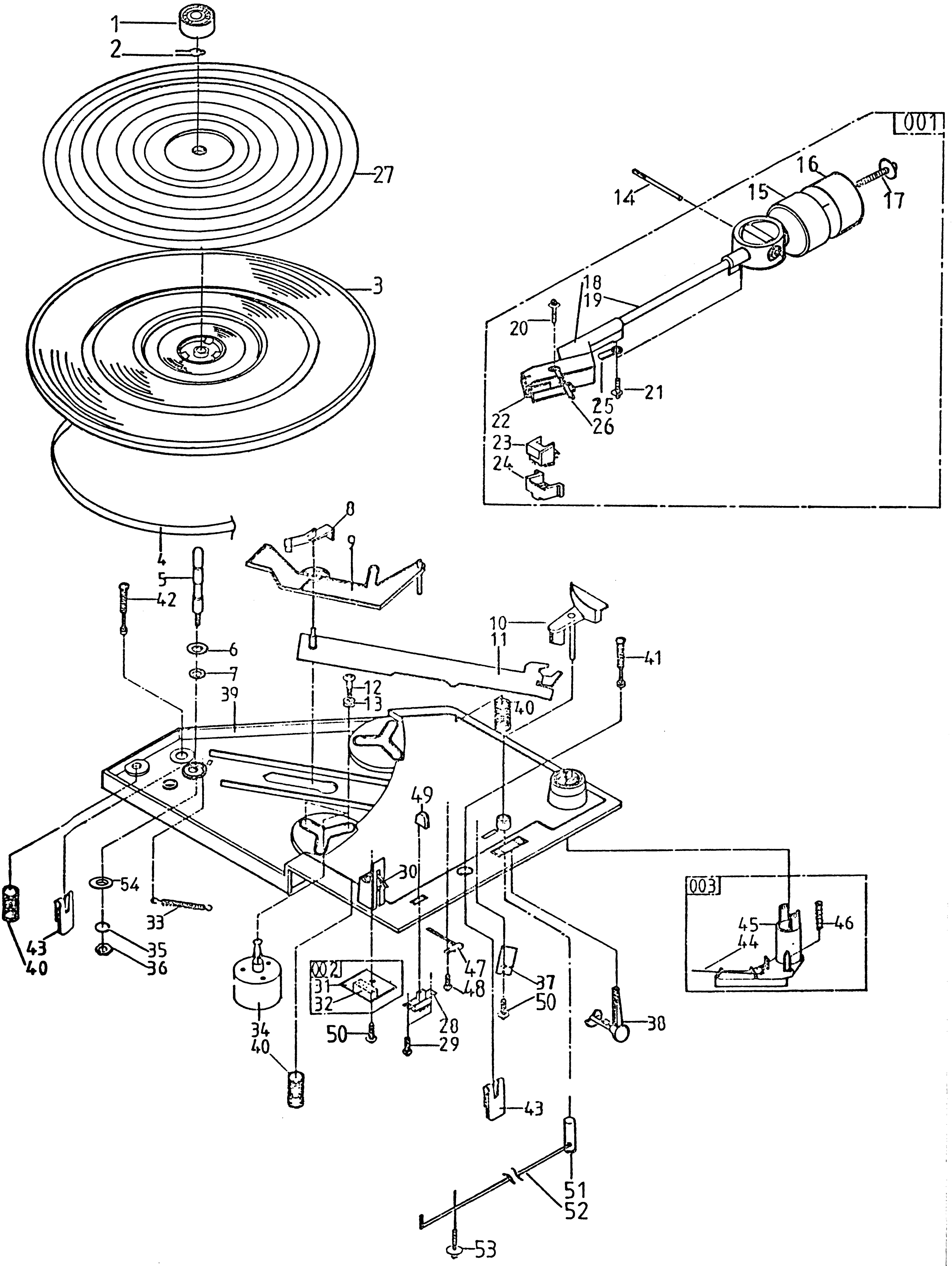
E8

Explosionsdarstellung Plattenspieler

Exploded view player mechanism

Explo-Index: PL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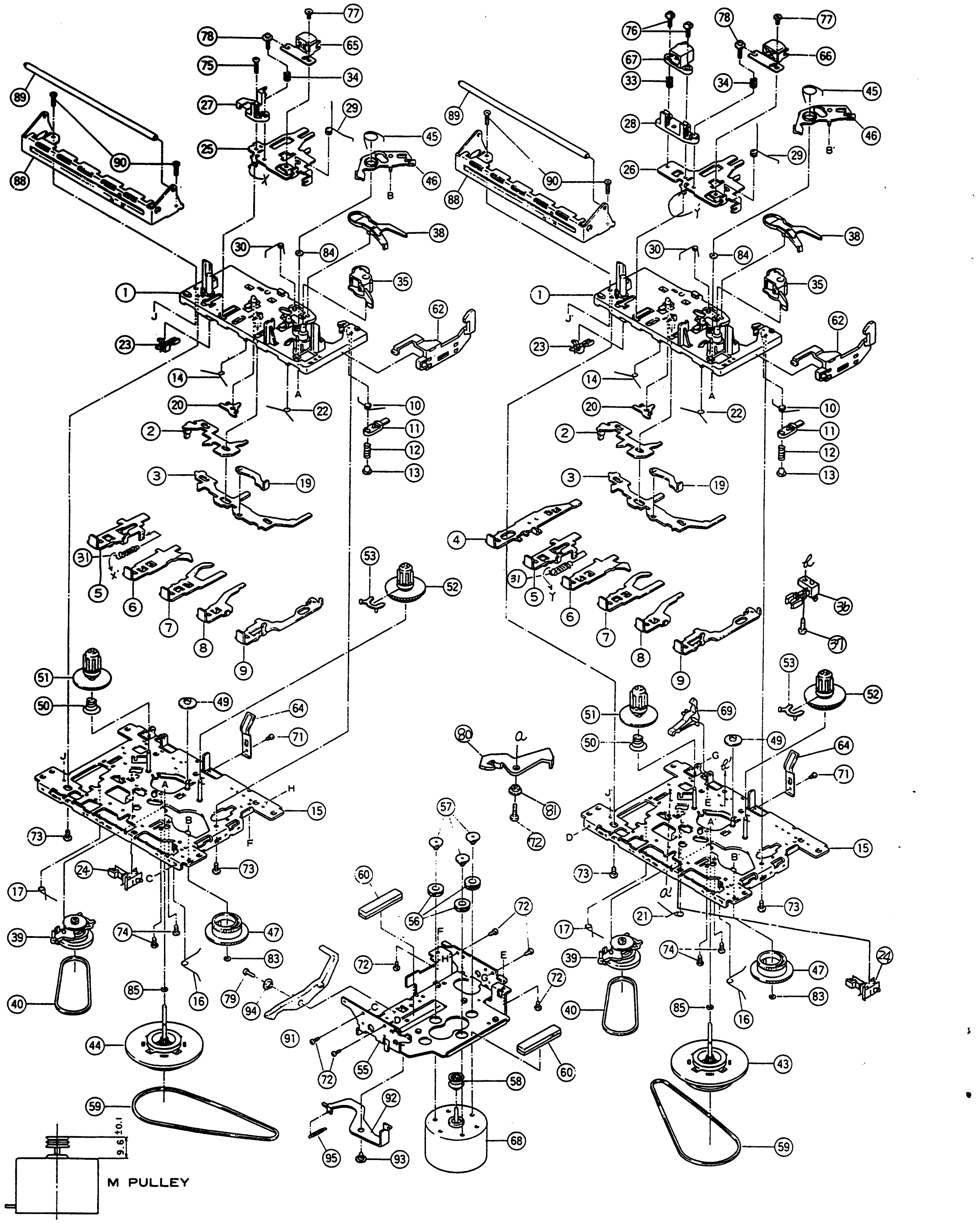
Explosionsdarstellung Cassetten-Mechanik

Exploded view cassette mechanism

Explo-Index: CM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Ersatzteilliste Cassetten-Mechanik
Exploded view cassette mechanism

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe/ Price key
48 916 00	Cassettenmechanik kpl. TN-21ZSW-651	Cassette mechanism assembly TN-21-ZSW-651		E6
44 128 00	Feder Pauserasthebel	Spring pause lever	CM 10	A0
46 417 00	Pauserasthebel	Pause lever	CM 11	A0
44 130 00	Druckfeder Pauserasthebel	Pause lever spring	CM 12	A0
44 131 00	Sicherungsstöpsel Pause	Pause stopper	CM 13	A0
32 428 00	Feder Tastenhebel (Vor-, Rückl.)	Button lever spring	CM 14	A3
46 864 00	Feder Aufnahmetaste	Rec. button lever spring	CM 21	A0
32 423 00	Feder Tastenhebel (Stopp/Pause)	Button lever spring	CM 22	A3
44 132 00	Mikroschalter MSW 1541 T	Leaf switch MSW 1541 T	CM 23	A4
44 133 00	Mikroschalter MSW 17820 MVDO	Leaf switch MSW 17820 MVDO	CM 24	A7
45 760 00	Feder Kopfträgerplatte	Panel head spring	CM 29	A1
44 134 00	Bandandruckrolle kpl.	Pinch roller arm assembly	CM 35	A6
44 135 00	Tasthebel Endabschaltung	Sensing lever	CM 38	A1
44 137 00	Rutschkupplung kpl.	RF clutch assembly	CM 39	A7
44 138 00	Riemen Rutschkupplung	RF belt	CM 40	A4
46 866 00	Schwungmasse (Aufnahme)	Flywheel assembly	CM 43	B7
46 865 00	Schwungmasse (Wiedergabe)	Flywheel assembly	CM 44	B7
44 136 00	Kurvenzahnrad	Cam gear	CM 47	A2
44 140 00	Zahnrad Vorlauf	FF gear	CM 49	A1
44 141 00	Wickelteller links	Supply reel assembly	CM 51	A3
48 829 00	Wickelteller rechts	Take up reel assembly	CM 52	A7
44 778 00	Pulley motor	Motor pulley	CM 58	A6
48 830 00	Antriebsriemen	Main belt	CM 59	A3
46 418 00	Gleithebel Eject	Eject slide lever	CM 62	A3
48 917 00	Wiedergabekopf	Play Head	CM 65	B7
48 918 00	A/W-Kopf	R. P. Head	CM 66	B9
26 887 00	Löschkopf	Erase Head	CM 67	B9
46 177 00	Motor Antrieb	Motor	CM 68	C6
32 451 00	Aufnahmesperrhebel	Record safety lever	CM 69	A5